BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

Final Section—Annual Meeting Reports

Balance Sheets of Management

The New Challenge to Scientific Management

Quality

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APRIL, 1931 VOL. XVI, NO. 2

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The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.

2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptations and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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The membership of the Society comprises Members, Junior Members, Honorary Members, Life Members, Firm Members, Contributing Members and Student Associates. Application for membership should be made on a regular form which may be secured from the Society. New members may be elected directly to the grades marked*.

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All dues are payable in advance, either annually or in semi-annual instalments. The fiscal year is November 1 to October 31. Members elected other than at the beginning of the fiscal year are charged pro rata (quarterly) for the first year.

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Comment

ONE of the most interesting and stimulating sessions of the December Meeting was that devoted to discussion of national planning for industry. The record of the discussion is presented to our readers on page 62 of this issue under the caption "The New Challenge to Scientific Management."

CURRENT interest in the subject has been manifest in numerous articles in newspapers and periodicals, and is now intensified by the appearance of "Business Adrift,"[1] a significant book by Wallace B. Donham, Dean of the Graduate School of Business Administration, Harvard University. The clearly presented solid substance of this book and the standing of the author make it one of the outstanding contributions to current industrial-political literature. We emphatically recommend it to our readers.

WHILE reading this book have in mind three questions. First, what is the author's diagnosis of the present trouble with American industry? This diagnosis is essentially that of the propositions discussed at our December Meeting. Second, what is the author's general conclusion? All readers will respect the boldness of it, and many will accept it. On page 61 we give it by quoting concluding paragraphs of the book. Third, what is the author's specific program? Here controversy is certain to develop.

IN THE face of an evident change of opinion by many leaders of American industry in a direction away from intense nationalism, Donham takes the stand for a planned national self-sufficiency. "We should develop our home market by giving greater security and leisure at home rather than depending on exports." This is quite in contrast to the view expressed by Herbert H. Wiggin, Chairman of the Chase National Bank, in January: "Is it not to be hoped that even the blindest among us may now begin to see that our prosperity is interlocked with that of our neighbors and customers . . .?" The modified-free-trader dean become a tariff advocate; the high-tariff banker become low tariff! There are interesting public discussions ahead.

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[1] McGraw-Hill Book Company, New York, 1931.

Balance Sheets of Management[1]

Suggestive Forms to Supplement the Financial Statement as a Basis for Credit Rating

**Prepared by a Joint Committee of the Taylor Society
and the National Association of Credit Men**

DURING the depression of 1920-22 the larger banks found themselves holding securities and commercial paper of many enterprises which had suddenly been plunged into the red; so many that uniform treatment of these debtors in accordance with earlier custom might have threatened the security of the banks themselves. Some of the banks began to employ industrial engineers to appraise these enterprises from the point of view of economic and managerial stability—to seek the answer to the question, "Which of them are so managed as to indicate reasonable probability of soundness as soon as industrial activity has returned?" This new element of appraisal has been retained as a permanent tool by many of the larger banks, although without any attempt to formulate a definite technique.

Possibly because of the example set by the banks, but more likely as the result of various less definite forces, the same idea of appraisals of management to supplement financial statements has begun to be entertained by those responsible for credits in manufacturing and wholesale establishments. This is evidenced in inquiries addressed to the offices of the National Association of Credit Men and of the Taylor Society. Accordingly these associations have initiated a joint inquiry into the feasibility of formulating standard balance sheets of management. The forms here presented are tentative and suggestive only; they are offered here so that the inquiry may be benefited in its early stages by open discussion.

The credit executive of an average-sized manufacturing or wholesale establishment may well exclaim, "How can I use one of these things; I am no expert in management, and my department certainly cannot carry the overhead of such an expert!" True enough; yet where there is a will, a way may be devised. First, the largest manufacturing and wholesale establishments can afford to carry such specialized ability; second, medium-sized and small establishments can form community groups over which the services of an individual expert may be spread; third, a regional unit of the National Association of Credit Men might retain the services of an expert available on the call of its constituents; and fourth, every credit executive, however large the organization to which he belongs, can learn, if he sets himself to it, how to observe the basic characteristics of sound management, and thereby strengthen his credit judgment.

The competent industrial engineer can in a single inspection of a business ascertain the nature of the framework of managerial procedures and the probability of successful conduct of the business. Of course the industrial engineer has a background which enables him to perceive things which others fail to see, just as the experienced guide observes things in the woods that the casual hunter fails to note. But the casual hunter can, if he wills, become a fairly good woodsman. We believe the credit executive can in the same way fit himself to judge management.

If the meeting at which these simple forms are offered indicates a genuine interest in balance sheets of management, the two associations sponsoring this meeting may later offer more detailed suggestive outlines of the elements of good management.

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[1] Paper presented before a joint session of the National Association of Credit Men and the Taylor Society, at the Annual Meeting of the Taylor Society, New York, December 3, 1930.

Balance Sheets of Management

Pertinent to Manufacturing Enterprises

I. Stability of the Particular Industry

1. Is the capital investment in the production facilities of the industry reasonable?

2. Is there sign of the emergence of a strong competing industry?

3. Is there sign of the emergence of a strong competing unit or group in the industry?

4. Is there probability of a reasonably steady consumer demand for the items?

5. Are prices of the lines fairly stable?

II. Position in the Industry of the Firm Requesting Credit

1. Is the capital investment of the firm normal for the industry?

2. Are plant and equipment suitable, up to date and well located?

3. Is the proportion of working capital adequate?

4. Are the firm's lines kept up to date with respect to items, service, style and price range?

5. Is the firm realizing a reasonable share of the market?

III. Management of the Firm Requesting Credit

1. *General Administration*

a. Is there a clearly defined alignment of organization responsibilities?

b. Does the organization provide a research and a methods unit?

c. Is the study of tendencies in industry generally, in the particular industry, and in competing

(*Continued in column* 1, *page* 48)

Pertinent to Merchandising Enterprises

Wholesale, Department Store, Mail Order, Chain, Independent Retail

I. Stability of the Particular Type of Distribution

1. Is the number of establishments in the competitive area reasonable?

2. Is this particular type of distribution serving the ultimate consumer adequately or are there signs of the emergence of some other more effective type?

3. Is there sign of the emergence of a strong competing unit of the same type?

4. If the distribution is that of a single or special line is the demand for the merchandise handled likely to be permanent?

5. Are prices of major items free from violent fluctuations?

II. Position in the Type of Distribution of the Firm Requesting Credit

1. Is the capital investment of the firm normal?

2. Has the firm adequate experience in successful merchandising?

3. Are the location and character of the buildings, fixtures and other equipment suitable and up to date?

4. Is the merchandise carried adequately representative of the type?

5. Are all the departments within the organization up to date with respect to service, styles and price range of merchandise carried?

6. Is the firm realizing a reasonable share of its market?

7. Is the buying public satisfied with merchandise sold and the service given?

III. Management of the Firm Requesting Credit

1. *General Administration*

a. Is there a clearly defined alignment of organization responsibilities?

b. Does the organization provide for a research and a methods unit?

c. Is some competent individual or unit responsible for study of tendencies of methods of dis-

(*Continued in column* 2, *page* 48)

(Continued from column 1, page 47)

and potentially competing industries a definite responsibility of some competent individual or unit?

d. Are the operations of the business forecasted in the form of schedules and budgets detailed with respect to monthly periods, lines and departments?

e. Is there an effective co-ordination and control of departmental operations, in terms of the forecasting schedules and budgets, and of standard ratios of relationship between sales volume, production volume, inventories, working capital, costs, etc.

f. Is there a definite policy for maintenance of the skill and good-will of the workers?

2. *Merchandising and Selling*

a. Are markets and lines periodically analyzed and revised, and new marketing programs formulated?

b. Is there a definite policy of sales promotion and advertising?

c. Are the most suitable channels of distribution utilized?

d. Are quotas established periodically, by territories, lines and salesmen?

e. Is there an aggressive planning and control of the selling processes?

f. Is a large percentage of the plant's production well distributed as to the number and types of consumers?

3. *Production Management*

a. Are plant, machines and tools continually appraised with respect to replacement or improvement to conform to the best practice in the industry?

b. Is there a unit charged with the special and continuing responsibility of devising and maintaining the most precise and economical methods of work and control of processing, including particularly planning of operations and checking of progress and costs?

c. Are inventories kept at the lowest point consistent with sales volume, the processing turnover and procurement?

(Continued from column 2, page 47)

tribution generally, of methods in the particular type of distribution, and of methods in competing and potentially competing types of distribution?

d. Are the operations of the business forecasted in the form of schedules and budgets detailed with respect to monthly periods, lines and departments?

e. Is there an effective co-ordination and control of departmental operations, in terms of these forecasting schedules and budgets, and of standard ratios of relationship between sales volume, stocks carried, stock turnover, and costs of operations, etc.?

f. Is there a definite policy for maintenance of the skill and good-will of employes?

2. *Merchandising, Advertising and Selling*

a. Are sources of supply, character of consumer demand and lines of merchandise periodically analyzed and revised, and new sales programs formulated?

b. Is there a definite co-ordinated and centralized policy of sales promotion, advertising and display of merchandise?

c. Is there an aggressive planning and control of the selling processes?

d. Is there definite provision for selection and training of sales people?

3. *Management of Non-Selling Departments*

a. Is there a unit charged with the special and continuing responsibility of devising and maintaining the most precise and economical methods and control of work in these departments?

b. Is there a proper unit control, according to sales volume and turnover, of stocks on hand, balances, shortages and replacements?

c. Is there an adequate financial control of each selling department?

Discussion

W. F. H. Koelsch.[2] I suspect the only reason I was honored by being invited to address this Society was on account of my connection with the National Association of Credit Men. When the invitation was extended some months ago I was especially pleased to know that a good neighbor of mine, not in a little village in Michigan but in a very nice village near New York, Dr. Person, was the head of your organization. I presume my presence is desired so that I may express the desire of the credit men to co-operate with any organization which has a purpose such as the Taylor Society has been known to have for so long. I have been familiar with the work that it is doing for some years past.

---

[2] Vice-President in Charge New Netherlands Office, Chase National Bank, New York, N. Y.

We in banks also have to do with statements and managements. I am reminded of the country bank where the cashier had skipped off with $10,000. The bank's accountant and bookkeeper, who also made statements, was perplexed as to how he should make the entry on the books and approached the president, saying, "We must make up our statement for the comptroller. How shall I make this entry of the $10,000 our cashier skipped off with?"

"Oh," said the president, "that is all right. Just charge it to running expenses."

Of course, a bank statement is not quite as simple as that, nor is the statement that a bank is asked to scrutinize and use as a basis for credit always that simple.

The subject of your discussion, "Balance Sheets of Management," is a highly important one to a bank and becoming more important all the time. The banks in recent years have given serious thought to such balance sheets *after* something has happened. The certified public accountant has performed his function before things went wrong but the engineer of management has been called in afterward to look into the thing and see how to rectify it by reconstruction and reorganization.

Obviously the work in which this Society is engaged is one of prevention rather than reorganization, and is highly important. Since the 1920-21 period, when the credit situation was acutely realized by the banks, I believe there has been evidence that the banks are attempting to inform themselves more fully concerning the risks they assume with respect to business management, and your discussion should prove fruitful. I am glad to know that credit men are now conferring with other than district attorneys.

I can only say it is a pleasure to me to be here. I do not wish to usurp the powers of our Executive Manager, Dr. Miller, in telling you how glad the National Association of Credit Men is to co-operate with the Taylor Society. Their efforts seem to be along the same line. It might be said that they go hand in hand, as lawyers and the devil go hand in hand.

Stephen I. Miller, Chairman.[3] I presume this meeting really began about thirty-five years ago. It happens that the managing director of the Taylor Society, Dr. Person, is an old town mate of mine back in a small town in Michigan. Since then he has been in many universities, finally going as dean to the Amos Tuck School of Administration and Finance and from there to the Taylor Society. During the past few weeks we have seen something of each other after many years and found that we have many interests in common other than the things of yesterday. Those common interests serve as the basis for this meeting.

You men and women, many of whom are in the credit field, realize that there has been an evolution in this field from the simple to the complex. Perhaps you are sitting in this afternoon on something which will lift your vision for a generation.

You are all familiar with the credit checker, the voice over the telephone that asks if you have been selling to such-and-such a company and think it safe for his company to sell them, also. That is the credit checker who believes in getting results with the least possible effort. He does not interpret.

Next you have the man who does some reading, who has reached the stage where he is willing to look at commercial ratings.

Then you get the person who goes a little farther than this. He is a subscriber to interchange and seeks ledger experience. He wants information on current happenings—when the firm pays and how it pays, and he does not want this for six months back.

Then there is still another type—the man who feels he can interpret a financial statement and will study it with all the power he has. He will use interchange of information, credit ratings, anything his friends may be able to tell him, and put it all together as a basis for deciding whether he will ship goods or grant credit as the case may be.

Today we credit men are reaching out to find if there is a fifth line of advance. Is there something not yet disclosed, either by checking, the commercial rating, interchange of information or the financial statement, which is essential to the granting of credit? In other words, are we approaching a stage where we shall welcome a management rating?

---

[3] Executive Manager, National Association of Credit Men, New York, N. Y.

I think these two words will show you the possibilities for the future, and that is why this conference has been called. The Taylor Society, a well established organization possessing dignity and strength, asked me to what extent we credit men were interested in management as a basis for granting credit. When Dr. Person put that question I replied that we should be glad to sit down together and get whatever valuable suggestions the management group had to offer. This is a happy occasion because of the number of representative credit men who are here.

You may be interested to know, too, that in two of our association units, namely, Los Angeles and San Francisco, there have already been placed on file reports from seven hundred business men. They are calling this their Business Service work. A movement along the lines we are discussing today is taking shape in our own organization in the West and moving eastward.

The big thing we all must consider is whether our present instability can be remedied by individuals or the state. This is only another meeting, but hundreds of them accumulated will bring about the composite result of saving our Anglo-Saxon individualism and producing economic stability.

I am going to ask Dr. Person to sum up the meeting after the discussion is completed.

David E. Golieb.[4] Dr. Miller has distinguished between the ordinary credit checker and the credit man. The credit man has always been interested in management; has always realized that at best a balance sheet is but a summary of the financial condition at a certain date. The credit man, however, knows that working capital will be enhanced or reduced as the result of the conduct of management. Each phase of the problems of the management should be known and well considered by the credit analyst. Informal, but intensive studies, have been made by credit men who know what their customers' problems are and can interpret financial reports in the light of the set-up of management, such as is suggested by the work sheet or balance sheet of management which we are about to consider.

There is a growing recognition of the importance of studying the management. It is realized that for the most part business insolvencies are attributable to unwise or improper management. Incompetence, inability to adapt the affairs of a business in time to meet changing and new conditions, and lack of character are factors. However, the credit man is interested in this subject from another and no less important angle. He is eager to cultivate and build accounts along sound lines. To make the most of his opportunities it is essential for the credit man to have an intelligent understanding as to the efficiency of the management. The form of management reports prepared by the Joint Committee of the Taylor Society and the National Association of Credit Men is richly suggestive to students of management. It is an excellent start. I hope that the work will be continued and that studies will be made in various trades and industries of types of concerns that operate under comparable conditions. As a result of such studies data and report forms can be developed which will serve as guides to the study of management.

It seems to me that the balance sheet of management not only supplements the balance sheet but is related more closely to the profit and loss statement. In fact the three should be considered together. The balance sheet shows the resources in which the net worth of the concern is invested and the financial position of the company for future operations; the profit and loss statement goes into the things that enter into gross profit and into the net profit. A comprehensive analysis of the details of this information presents opportunities to test the management and to become familiar with the conditions under which it operates. Along with this, however, it would be decidedly useful to have a detailed report covering the significant items affecting management in a particular line of business. Such a complete set up—balance sheet, profit and loss statement and management report—would enable the credit man better to accomplish what he is doing today, that is, co-operating constructively with his customers. Naturally this demands that the credit man should have a clear understanding of the problems involved.

Richard H. Lansburgh.[5] In the first place, let me express my appreciation for the work of the Committee in developing this first attempt at a balance sheet of management. It is, as has already been stated this morning, a very necessary adjunct to credit operations today.

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[4] Treasurer, Einstein Wolff Co., New York, N. Y.

[5] The First National Bank, Detroit, Mich.

I will speak from the standpoint of the bank, assuming that other discussers will speak from the standpoint of credit men in industrial enterprises.

We feel today in the institution with which I am connected that we cannot tell anything whatsoever about an industrial company from the balance sheet that it presents. We can get some ideas concerning trends, some ideas concerning history, but we will not attempt to say whether or not it is a good credit risk from the balance sheet alone. We want to know something more, and that something more has, of course, to do with the management side. Whether or not you can ever develop a balance sheet of management, similar to a financial balance sheet, that can be taken into a committee and intelligently discussed by the people there, I do not know. This, of course, is not such a balance sheet. I will take the liberty of saying that it seems to me not to be a balance sheet at all, but rather a work sheet for the person who is going out to look at the enterprise. As such, it is very stimulating. But you will have to go much farther before you have anything which can logically be termed a balance sheet of management, something which when read will give exact information as to the status of management in a given company just as you can today tell the financial status of the company by looking at the every-day balance sheet.

I think the questions here are stimulating, but far too general for daily use. Before you can utilize such a sheet, even as a work sheet, you must tie it up more closely to the individual type of enterprise. I am inclined to think, furthermore, that there must be a little stronger emphasis in certain directions. Those of us who are going out every day to look at the condition of industrial enterprises could ask: "Is there sign of the emergence of a strong competing industry?" The answer would always be "Yes." "Is there sign of the emergence of a strong competing unit or group in the industry?" Again the answer would be "Yes." You must look at every firm with the very definite thought that these things may happen one of these days. (Based on the experience of the past) "are prices of the lines fairly stable?" Of course, much depends on what you mean by "fairly." In other words, these general questions, while they are helpful in orienting us to the type of thing we want to think about seem to me to be so general that they would lead us into difficulty from the standpoint of analyzing a given company.

There is Question 2, under Section II, in the manufacturing enterprise sheet: "Are plant and equipment suitable, up to date and well located?" I remember a certain lady in New York who is supposed to have said to the Queen of Roumania, "Queen, you said a mouthful." That is certainly a mouthful. There you have the crux of the success or the failure of a large proportion of our manufacturing enterprises today, and you have to break that down into all manner of detail if you want to analyze the management of any particular company. You must get the value of the plant per square foot and see whether it is a fair valuation on which to earn interest charges and dividends, whether the plant for some reason or other was put in at too high a value to start with, or whether it has been written up in accordance with the appraisal of the X-Y-Z Appraisal Company, which may be high. Is the plant laid out properly? Is the sequence of operations one which brings with it a minimum of transportation charges? Is material-handling equipment properly developed or excessively developed? What is the cost of material handling in the plant? Of course, as I said, you have to judge these things in terms of the competitors' plants in a given industry. The matter of location is, of course, fundamental and should be put right at the top. Is this plant in a location where it can compete in the industry in which it is located?

The single most important item today in the consideration of management, if the plant is going to survive the condition we are in, is what the executives are doing concerning the inventory of the plant. They need to know not only what the raw-material, worked-material and finished-material inventories are, but how long those materials have been there, how rapidly they are moving, what the depreciation factors are, etc.

"Is there a clearly defined assignment of organization responsibilities?" That is very important. Not only should our responsibilities be clearly assigned and defined, but we should know how the organization is functioning. Is it working? Are there properly trained people in key positions? Are these people working smoothly? What is the actual fact concerning the ability of the head of the company as an administrator and what is the truth about the individuals who head up the various important departments in the same regard?

If I should go out to evaluate the management of a company and try to put the results down on a balance sheet, when I was talking to each individual department head I should be thinking more in terms of what kind of an executive the man was than of the detail that we find here, such as, for instance, whether or not there is a research or methods unit. Whether there is a research unit is less important than whether the spirit of the organization is a research spirit. The sheet is just a little too impersonal. We have always talked about loans on the basis of character and capacity as well as the balance sheet, and here is a chance in developing a balance sheet of management to evaluate character and capacity in terms of managerial ability.

"Is there a definite policy for the maintenance of the skill and good-will of the workers?" Fine! But we must be much more definite. I went in a plant two weeks ago and got a new figure for maximum labor turnover. This company had been turning its entire working force over 100 per cent each month for a period of a year. They had a 1200 per cent turnover per annum, and some folks were wondering why they had not been more successful. That, or the conditions which caused it, is much more deeply rooted than an attempt to maintain the good-will of the workers. For one thing, that company probably holds the world's record for rate-cutting. I asked the general superintendent if they ever changed rates and got this reply: "Oh, yes, we are changing rates all the time. Whenever a man gets more than we think he should, we cut his rate." He told me that as though it would demonstrate to me how good he was. All these very fundamental things are the things you have to know. Of course, good-will will spring out of these fundamentals, and I assume that was implied. I am just trying to show you the things I feel you have to know in detail if you are going to establish any sort of a balance sheet of management.

"Is there a definite policy of sales promotion and advertising?" The answer will always be "Yes," because you can find some policy. What kind of policy is the question. How is the sales organization developed? What kind of relationships exist between the sales managers, the divisional sales managers, if there are such, and the salesmen? Are sales being made through manufacturers' agents or through a sales force and why? We must have detailed consideration of whether or not the sales organization of the company is set up in such a way as to deal effectively with its competitors.

After you get these details you will have, I think, a lot of data from which to form a balance sheet. We all do it today entirely by guesswork. We say the layout and physical conditions of the plant are such; the personnel and sales relations are such. If we get a generally good impression, the line of credit is extended or continued. If we get a generally poor impression, something of the reverse is done.

It seems to me that until we get some method of evaluating the relative importance of all of these factors in the different types of industries — and they will vary in importance in the different types —we have to think of this thing less as a balance sheet of management than as a detailed consideration of the facts of management, which can only be set forth in relation to the condition of a given company as we find it at the time.

That does not mean that we should give any less consideration to a balance sheet, nor that it is any the less important. It is extremely important. If we think we are going to be able to find something ready made, easily read, similar to the familiar financial balance sheet, expressed in figures, we are going to be mistaken, and progress in the consideration of these matters, in which we are all so interested, will be retarded. Rather than in terms of a balance sheet, we ought to think in terms of the importance of these various elements in the granting of credit.

Houston P. Reader.[*] I have thought of a great many questions which are not on the sheet. The first one is: Why was it called a balance sheet? It seems to me a stimulating set of questions but not a balance sheet.

I am wondering also to what kinds of concerns and how it could be applied. How could you apply these questions, for example, to the small retail organization with a capital of $10,000 or $15,000?

You could not put the material in the form of a questionnaire and expect the credit man to either send or take it out to be filled in.

---

[*] Assistant Treasurer, Cannon Mills, Inc., New York, N. Y.

Each credit man in this audience has a different problem and I question whether it is possible to work out a form of inquiry which will be applicable to all of them. By what yardstick are you going to measure? Is the credit man supposed to have sufficient knowledge to own a business himself? If not, how can he pass intelligently upon the management of someone else's business?

The whole thing is an enlargement upon the capacity to conduct a business. The credit man who is going to pass judgment of this kind will have to be familiar with every kind of problem and plan continuously to visit the concerns in which he is interested.

Rapid change is another factor that has not been mentioned. You cannot apply the same rule of reasonableness in times like these as you could four years ago. If this sheet can stimulate questions in our own minds as we go about among our customers and teach us that we cannot get the other man's point of view by sitting at our desks it has real value.

A credit man told me a story a while back of one of his customers. The firm was obviously slipping and the credit man, after studying the matter at his desk, took a trip out to the plant. He knew nothing about the particular industry but he questioned one process. The proprietor explained the reason why the particular process was used, to which the credit man replied that it might be well to at least think about the other method. A year later he found his suggestion had been followed out. That was several years ago and the plant is now on the up grade. That was just a chance suggestion but how many credit men have the ability, the training or the opportunity to make such suggestions?

It seems to me, therefore, that many more questions are needed. And provided it is possible to get answers it will be pretty difficult to add up the positive and negative answers and say whether you have a plus or minus result and therefore whether or not the concern is a good risk.

I much appreciate the opportunity to participate in this session. A great deal of credit is due those who are responsible for it because it will certainly stimulate valuable thought on the part of all of us.

Sanford E. Thompson.[7] In the course of our work we have frequent occasion to visit industrial plants which we are not actually serving and to observe their conditions. We often see run-down equipment, a deterioration in management and old-fashioned methods. These companies may have been very successful thirty or forty years ago.

Sometimes the condition is so critical that the natural thing to do is to talk it over with the interested banker. His answer used to be that he could do nothing—that the firm was paying interest on its loans and had sufficient quick assets to cover them, and that was all the bank could ask. More recently the banks have begun to ask for production reports as well as balance sheets. The banker was more or less justified in thinking that he had no right to criticize when the firm was meeting its obligations to him, but the new tendency gives the situation a different aspect. He does not criticize, he merely asks for a statement of fact. The manufacturer cannot object to that. It is equally valuable to him in ascertaining where he stands to know these facts.

In attempting to establish fact instead of opinion as a basis for credit it seems to me that this discussion has instituted a new credit era.

My criticisms are somewhat along the line of Professor Lansburgh's, but they are incidental. This is a preliminary statement which of course needs dressing up, especially along the line of fact determination.

After the facts are determined they must be interpreted. I think it immensely important that we know how they are going to be interpreted. As I understand it the man who puts these questions is supposed to make the interpretations. But a man going to one plant may have entirely different ideas from the man going to another and therefore the results will not be at all comparable. Can we make them comparable by getting down to a figure basis, let us say a set of comparative ratios?

I think you will all remember the committee on waste elimination appointed by Herbert Hoover, then President of the American Engineering Council, in 1922. The plan was to examine the different industries, and selected plants in each. In other words a balance sheet of management was made up for each plant. Then there was a great deal of discussion as to how these reports could be made comparable. As a result a rather lengthy and elaborate questionnaire was worked out and each point in it was given a value. The sum of the ratings for any plant gave the management rating for the plant, or the percentage of efficiency of the plant.

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[7] President, The Thompson & Lichtner Co., Inc., Boston, Mass.

This system had two results. In the first place it gave a very definite picture of management's responsibility for waste. In the final summation it was found to be responsible for some 60 per cent of industrial waste while labor was found responsible for only 15 to 20 per cent. This was a radical finding which the committee had some hesitancy in publishing but fortunately the material had been released before the Council's approval was gained. This produced an entirely new point of view in many manufacturers who had believed labor responsible for all its troubles. The percentages were of course crude and inexact but they gave a true picture of the situation.

Another thing that was brought out was the wide range between the good and the bad concern. It showed up a thing which many of us had known but we had not had an exact basis for our opinions.

I think the next step should be to work up some very definite measure which will make it possible to compare different plants more exactly than we can at present and give the credit man the benefit of this fairly exact record.

Francis A. Westbrook.[8] I can well imagine a credit executive of an average-sized establishment exclaiming, "How can I use this thing?" The question is well put and perfectly legitimate. To get a complete answer to all the points brought out in the balance sheet we are discussing might easily require the services of an expert industrial engineer. On the other hand many of the most vital questions which must be answered to make an appraisal of the management are not so hard for anyone with an industrial background. They are questions which might be termed earmarks of good management and I think a brief discussion of them will tend to make the balance sheet look much less formidable. After all, the object of all this is simply to try to find out whether a given organization is functioning properly. It is altogether probable that credit executives are influenced, consciously or unconsciously, by some such considerations, although they have not had such an analysis as this balance sheet as a guide in appraising their findings.

My contacts have been mostly in the manufacturing field so that what I have to say is with this background. I also want to make it plain that what I am trying to do is to point out by means of a few suggestions how much of the necessary information can be rather easily secured by a credit executive of some experience without other expert help. He can usually find out all that is necessary, especially with the help of a carefully considered balance sheet.

Take, for instance, the quality of the product. Obviously this would be the first concern of a good management. Good quality is certainly not hard to determine. In the first place if the type of product is specified by engineers, these engineers will have very decided ideas. They will know, to their sorrow or satisfaction, how the product has served its purpose. They will also have ideas as to what sort of a concern they are dealing with—whether it sends out high-pressure salesmen whose main object is to make sales regardless of consequences, or whether it sends out well-trained men whose object it is to help them select the most efficient and serviceable equipment for the purpose in hand. Reference to three or four engineers will usually clarify these points.

In cases where engineers do not figure it is always possible to make contact with some of the users of the products. Purchasing agents have good ideas as to what the concerns with which they deal are like. The experience of either the engineer or the purchasing agent will tell much of how the concern which asks credit is run. It is also always possible to learn the names of a few important consumers of a product and ask them some questions along these lines.

The service which is rendered by manufacturers to their customers is without doubt a very definite indication of the quality of the management. Service in this sense includes promptness of delivery, replacement of parts, technical advice, quick action in emergencies, etc. This can be ascertained from the above sources and at the same time.

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[8] Engineering Journalist, New Canaan, Conn.

It is probably safe to say that nowadays every first-class producer of materials or services feels the necessity of carrying on research work in some form or other. The existence of such activities is not hard to determine. Engineers and consumers know about them from their contacts and the results of the co-operation they have received. Furthermore, companies which have good research departments are usually proud of them and are generally willing and anxious to tell about them. Very likely members of the research staff from time to time present papers at the meetings of technical societies, and to the technical press, from which a very good impression can be gained as to what they are doing. Even if the credit executive finds that some of these things are too technical for him there is probably an engineer or chemist, for instance, in his organization who can help him out.

Well-managed industrial enterprises generally see to it that they have sufficient diversity in their products so that their eggs are not all in one basket. Even if they make a limited class of machinery, they usually make every effort to produce grinders, milling machines or what-not, as adaptable as possible so as to remove all possible limitations and have the product as widely used as practicable. Whether this very desirable condition exists or not can be determined from catalogs, customers and engineers. This applies not only to machines but to almost all kinds of manufactured products, and is one of the best safeguards against sudden obsolescence due to technological changes.

There are also manufacturers who make products with a seasonal demand, such as toys. Those which are well managed have developed other seasonal lines which fit in, so that they can keep busy the year round. This is certainly not very hard to find out.

The quality of plant management can probably best be determined by a personal visit. Such obvious conditions as cleanliness, intensity of lighting, type of machinery, the use of cranes, conveyors, industrial trucks and tractors, the absence of overhead shafting and belts are among the more easily recognizable earmarks of good plant management. In old plants progressive changes in these directions, even if still incomplete, are not hard to recognize.

Perhaps the attitude of whatever member of the organization it is possible to talk with is one of the best guides to the alertness of the management. In conducting his visitor around the plant this man will, if his listener shows interest, generally discuss current problems and plans and will almost always be glad to explain the workings of the planning and scheduling departments.

If a credit executive visits a plant it is not very difficult for him to form some sort of an opinion of the personnel relations existing there. The existence of foreman training and shop committees in addition to the more conventional forms of welfare activities may be determined by the asking of a few questions. In fact, the way in which these questions are answered will very often tell the story in a nutshell. The answers will often disclose immediately whether the management is antagonistic, indifferent or enlightened in its attitude toward labor. Executives really interested in this most important part of their managerial function always seem to be easily accessible and only too glad to talk about and explain their aims and accomplishments in building up good relations and reducing the wastes due to labor turnover, lack of interest and contentment.

A credit man can easily ask some questions which will bring out the essential facts as to what a concern is doing in regard to merchandising its products, such as forecasting sales, studying styles, the needs and preferences of its consuming public, the most economical methods of distribution, etc. It should not require an impossible amount of effort to acquaint himself with the significance of the more important of these details.

As already stated, the object of this discussion is simply to point out by a few suggestions that a credit executive of an average-sized establishment can, without being an expert industrial engineer, quite easily obtain a very fair idea of what the management of a manufacturing concern is like, and whether it is functioning properly. It is evident that by following some such procedure as outlined he will have answered a good many of the questions raised in the tentative balance sheet. Consequently, it seems altogether probable that after feeling his way around for a time in his particular field he will develop a technique which, with the help of a balance sheet of management worked out by the associations represented here, will enable him to appraise the effectiveness of different managements with surprising accuracy, at least for routine work. For those cases requiring a very complete analysis he may need the expert industrial engineer, but this should be only occasionally or in the beginning.

Alexander Wall.[*] First, I am going to tell you a story which has to do with management. There was a Southern darkie with a little farm. A progressive salesman sold him a cream separator and got the down payment. Then the negro proceeded to forget all the deferred payments. The salesman, or the credit man of his house, finally called on the darkie and said, "Mose, why don't you keep up these deferred payments?" Mose said, "Why, foh de Lawd's sake, the man who sold me the cream separator said it would pay for itself in six months." I do not know whether that is a credit or management problem.

Mr. Golieb stated that the financial statement is a summary. This is correct. I think it is more than that. I think it is a resultant summary, a summary resulting from operation. I think it is even a little more than that. I think it is a comparable result summary, something that enables you to make comparisons from time to time and to get results in spite of Tom, Dick and Harry.

Bankers in days within my personal experience analyzed financial statements for protective reasons. All they wanted to do was to come in under the wire first when a concern was going to blow up, and to get theirs. After that—perhaps ten, twelve or fifteen years ago—statements were used for reconstructive purposes. This was particularly true after the 1920-21 fiasco. We found out at that time in the banking business that it was far cheaper to reconstruct a going concern than to tear it apart and try to sell it at so many cents on the dollar in a depreciated market. I think we have progressed a little bit farther than that today. I think the intelligent analyst who knows his stuff, and is trying to do something with the facts that he has, is using financial statements constructively. This business of calling in the borrower when his current ratio is low and telling him to pay up, even if he is paying a good interest rate, is often absurd.

Every bank of any size in the United States is maintaining a so-called New Business Department, high-pressure salesmen who go out and try to persuade everybody to carry his account with their particular bank. There is not a bit of real new business in that. When a customer of one bank goes over to another bank, not a nickel's worth of new business has been created. Existing business is diverted. If you want real new business you have to produce it. And how can you produce it? The gentleman from Boston intimated that it can be produced by taking customers that are not as effective as they should be and showing them wherein their set-up is wrong and what they can do to produce a better net result, so that a summary at the end of each year will show an improvement resulting in a stronger credit position. Anything of this nature that can be done to stimulate the business is in reality "new business" of a high order. It is constructive.

As a credit man I take my hat off to no "new business" men. The new business of the country, the growth of the country and its increasing strength, the financial control and the elimination of periods such as the present are absolutely the problems of credit executives, commercial and bank, and no other group of men can solve them. There are plenty of people in business who should not be in it as individual units. Too frequently a man who has saved up a couple of thousand dollars by hard work at a lathe, or printing press, thinks he can go into business for himself. He is a good mechanic. In the personnel study that your balance sheet suggests he would be rated as a great asset to a growing concern. He starts out and buys all the machinery he can on deferred payments. In a couple of years he and his machinery are on the junk pile. Because he did not have in himself a sufficient knowledge of finance, the proper sense of proportion between production and consumption, the broad sense of the economic struggle that is going on, he failed. Who but the credit men were responsible for his failure? It was foreordained when he started, in many instances, and the credit men, commercial, bank or any other kind, who allow that type of unit to start, are responsible for the resulting failures.

I have a miscellaneous collection of memoranda here from preceding addresses. Somebody made a statement about the relating of costs to competitors' costs in order to establish whether or not they are reasonable. That is all there is to the particular kind of trade statement and analysis about which I have been fussing for the last twenty years. It is nothing but the comparison of summary pictures of single units with what has been found to be typical at the same time for other units in combination.

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[*] Secretary-Treasurer, Robert Morris Associates, Lansdowne, Pa.

I would like to use the picture means of showing you just what a financial statement and analysis mean. I will do it in this way: I am fairly fat; I am fairly short, in the legs especially. I could probably walk three miles an hour if I hustled. Suppose I went out on Fifth Avenue and started at 33rd Street to walk north for an hour. At the end of that hour I would be three miles up the street. I would progress after a fashion. I might even be considered a fair pedestrian. Then suppose a regiment of hard-boiled Marines, all six feet tall with four feet legs, taking steps twice as long as mine and twice as often, were out there. I might be up with the first file of four, with the color bearer—or the head of the band—at the start. The Marines are capable of walking four miles an hour. They are good pedestrians. At the end of the first hour, would I be up with the first file of four? Not by a jugful! I would be a full mile back, and if you kept that up they would be in Albany before I got to Sing Sing.

The facts concerning an individual company, through its statements, its management, or any other means, may indicate that it is making progress. But when you measure that progress against what the trade is doing, against the composite summary, you may find something else is happening. The individual company may be moving back from a leader to a tail-ender in that trade. Everyone knows that if you are going to fall out of a line of march because you have sore feet and want to be picked up by an ambulance, you do not get right out. You drop back slyly from the first line to the line behind; you drop back a few files, look around to see what the top sergeant is doing, and if he does not see you, drop back a few files more. By and by you get into another company where the top sergeant does not know you. You get back far enough so that you can let the sore feet take care of themselves: you sit down and whistle for an ambulance.

The same thing happens in business. Ordinarily you do not find failures among the leaders of the procession in any trade. They are among the tail-enders, or tag-on-behinders. So, if by the use of these summary figures, the trade financial statement and its usual proportions, you can place a company in relationship to what is common or usual in the trade at large, you have some kind of a measure by which to tell whether or not that particular company is a good risk, a fair risk, or a bad risk.

In spite of a good many experts who will not believe it, I can state this one thing: Out of these figures for individual companies, set down beside the figures of the trade, a person with no more intelligence than an office assistant has been able during the last ten years to foresee seven or eight of the largest industrial collapses that this country has had, fourteen to eighteen months before the appointment of committees to revivify or reconstruct them! Furthermore, within the last two years this type of comparing figure facts of an individual company with the figure facts of the trade, has to my knowledge brought the banks, and the executives borrowing from banks, to an understanding of how to reconstruct at least ten companies that would otherwise have collapsed. They are even going through this period. Why? Because they realized some five or six years ago that they were becoming tail-enders and had to do something to prevent sliding out the back door.

These are not theories. They may be incidents; they may be accidents. But it happens that way so frequently and so regularly that I believe the figure facts on the successive annual summaries, related to the trade as a whole through the annual trade summaries, reflect management. I have written a little definition of capacity. It is this: Capacity is the ability to manage any company so that successive statements will reflect equal or increasing strength in regard to profits and the proportions of the figure facts.

The personality element in management is fine, but I deny the existence of really good management unless the figure facts are favorable. If you think that management is good, it must result in a favorable factual showing or the thought is not a fact. The whole series of Get-Rich-Quick-Wallingford stories were written on plausibility rather than factual conditions.

The message that I should like to leave with the people who are going out to study business with this kind of a guide is that these indefinite, but highly desirable questions will get you nowhere unless the factual results are satisfactory. Good management must leave a good impress. Figure facts are but the reflections of management. If they are distorted or indicate failing strength the management, of which they are the reflection, can hardly be good.

E. Hayden Hull.[10] Mr. Wall did not make one point. That is that whereas actual results may be good, the financial statement does not show how much better they might have been if there had been better human management. I myself question whether there has been enough emphasis placed on the human element in this proposed balance sheet. It is men who make things run. What the credit man wants to know is whether the business will be run as well or better in the future as it has been in the past. This depends on the men who are managing both the machines and other men.

It seems, therefore, that a technique should be set up for measuring the human element in more detail. The National Association of Credit Men is in an even better position than the technical management societies to put such a balance sheet into effect. The companies who come for credit are obliged to give whatever information is asked, while the management societies can rely only on salesmanship in promulgating techniques which they deem advisable.

I propose that the human part of the balance sheet be divided into two parts. The first should show whether or not the general management has set up proper scientific management procedures for making the most of its workers. This covers proper methods of selection, training, fair wages, incentives and proper supervisory work.

The second part should provide objective measures of personnel performance. The output per thousand man hours, in the fields of production, sales and the office, whether this output is increasing or decreasing and how it compares with the standard for the industry, should all be ascertained. The ratio of spoiled to finished goods, of salesman's calls to sales and of clerical workers to volume of business should also be compared with the standard for the industry. The rate of labor turnover is also an important index of management. The standards of the industry for all of these things are of the greatest importance, as many of them are not measurable *per se*.

The research division of the National Association of Credit Men is in an ideal position to collect, check and organize the material for such measures and general standards. Such a piece of work would benefit them and be of real service to the whole field of scientific management.

G. E. Schulz.[11] It is significant that the discussion today has focused on the word "capacity." Financial statements measure accomplishment rather than true plant capacity—that of men, facilities, methods, etc. To measure possible capacity in all these lines the engineering approach is necessary, and the services of the industrial engineer and the marketing counselor, as well as of the credit man and the accountant, must be sought. No one group can give a true picture of possible industrial capacity. Nor are appraisals made at long intervals valuable. Conditions often change overnight and appraisals must be made at frequent intervals.

Thomas O. Sheckell.[12] My work resembles the post mortem more than the constructive work that has been described here today. As we go over the records of defunct businesses in our office, however, we realize the crying need for management analysis. Ineffective man power has been the primary cause of the business failures of the year. And it seems to be possible for men who have failed once to get credit to go back into the same type of business again. We have on our lists a number of "repeaters."

George G. Berger.[13] It is rather generally accepted that the usual accounting statement of assets and liabilities is not sufficient and that a supplementary rating of management is needed. I do not think that a "balance sheet of management" is required as an addition to the usual accounting statement but I do firmly believe that we must use the factor of managerial efficiency to secure new values for the assets of a business.

This may be done by a management rating worked out at one-month periods. Under my plan the operating viewpoint of the administration is analyzed into operating policies. The ratings of these policies are secured by evaluating certain operating results in terms of standards set for the condition of maximum turnover of capital. In this manner a management measurement, or rating, which may be taken as a direct indication of its efficiency and future efforts toward maximum earnings, is obtained from the operating viewpoint.

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[10] Consulting Personnel Engineer, New York, N. Y.

[11] Consulting Engineer, New York, N. Y.

[12] Manager, New York Credit Men's Adjustment Bureau, New York, N. Y.

[13] Industrial Engineer, New York, N. Y.

In considering the bearing of such a rating on the balance sheet of the company, the first thought suggested is that the real worth of the business is determined from accounting valuation and the probability of accomplishment as indicated by the past ratings of management. In other words, the accounting values are to be multiplied by a managerial constant which may be obtained from the ratings. I would not use a supplementary report but a composite report of accounting value and managerial rating. Supplementary reports are additional reports, and to my mind there is bound to be some indecision in their use.

In preparing a balance sheet which incorporates the managerial ratings, I have found important at least five valuations of assets, depending on the viewpoint assumed for valuation purposes. They are:

1. The usual accounting value as determined by cost and net profits.
2. The liquidation value, which is based on what the assets are worth if disposed of quickly.
3. The incentive value based on the willingness of the management to keep operating for the purpose of maintaining the higher accounting value.
4. The continuity value, which is a value indicated by the past ability of the management to secure business and continue operation.
5. The managerial value, which is the value based on the past managerial effort.

The continuity and managerial values are future estimates of the values of the various assets and for this reason are lower in total than the accounting and incentive values. The composite, or average, of these five values may be taken as a conservative estimate of the real value and the real net worth.

I do not offer this form of setting values as a final, perfected form but as a suggestion in establishing the real worth of a business. It takes into account, first, cost, then present value at a forced sale, added value to be secured by the company's known ability to secure additional business, and added value to be secured by the company's known ability to operate efficiently for a profit.

Arthur K. Schulz.[14] In future those companies which expect to profit from the mistakes of the past and anticipate so far as possible the difficulties which economic recession is likely to bring, will be those which attract to themselves well trained economic talent, so that periodic reviews may be made by committees consisting of the top representation of credit, economics and control. This applies to all forms of undertakings which extend credit in one form or other. We shall of course always have marginal enterprises, just as we have marginal workers, which just barely get by, and below which we have those which fail. We can never hope entirely to forestall business failures, but we can see that our particular company does not take an undue share of such losses which foresighted effort and redirection can prevent.

Those creditors which rely largely upon annual balance sheets and profit and loss statement analyses for their information as to the condition of their debtors are likely to be working upon information which is from six months to a year old if not more than that, because if a debtor is not doing well in July or August, it may be February or March of next year before the credit man is possessed of information which discloses dangerous tendencies. Moreover, year-end statements are more likely to be window dressed in some form or other, so as to hide the true condition.

Then, too, smaller companies are not necessarily audited by public accountants, and one has no assurance that the figures are correct, assuming that any are available. Consequently the smaller enterprise must be covered by visits of some kind if one is to get a true slant.

W. R. Williamson.[15] It is suggested that concurrently with the development of a management balance or evaluation sheet, the conventional form of financial statement be carefully studied and revised so as to permit of proper co-ordination with the management evaluation. The two in conjunction should constitute a complete business statement.

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[14] Assistant Comptroller, Chase National Bank, New York, N. Y.

[15] Consulting Industrial Engineer, Chicago, Ill.

This statement should set forth not only the financial facts of the business, as ordinarily determined by the certified public accountant, but also such data as indicate the true position or condition of the enterprise, measured with reference to a "standard risk" and the average for the industry.

The several factors taken into consideration, both financial and managerial, should be weighted and a single index number for the individual business evolved. This index number should express the position of the individual concern relative to the "standard risk" and be comparable with a similar index number for the industry.

In other words, methods similar to those employed by certain established agencies (such as Robert Morris Associates) in the analysis of financial statements and determination of financial index numbers should be applied to the entire business and to the industrial group to which it belongs.

In arriving at a credit decision such an index number could be applied to determine the factor of safety present under conditions stated by the balance sheet, which, as suggested above, should conform to the requirements of the method of measurement employed.

Plotting successive index numbers in the form of a logarithmic, or rate of change, curve will tell at a glance the story that bankers and credit men have for so long tried in vain to read in the conventional financial statement.

As stated in the program of this meeting, the subject under consideration surely raises the question, "What are the earmarks of good management?" Answer this question and you will have answered the question, "What constitutes a good credit risk?" It should not be difficult, then, to establish a standard basis of comparison and a workable plan for measuring the individual business enterprise with reference to such a standard.

Another very important question that must be answered is, "By whom are the data essential to such measurements to be collected, and by whom are the measurements to be made and presented for the information and guidance of the credit man?" Without entering into a detailed discussion of the questions appearing upon the suggestive forms prepared by the Joint Committee, it is obvious that the management of the concern under consideration cannot be depended upon for all of the answers, nor can the credit man be expected to turn his office into an analytical laboratory. It appears to the writer, therefore, that it is a job for the independent industrial engineer, working in conjunction with the certified public accountant and with the same professional status.

Just as the accountant prepares his financial statement from an analysis and interpretation of the financial records of the business, so must the engineer rely to a great extent upon the written records of the business. Will they tell him what he wants to know? In but a few cases they do not. It seems, therefore, that the business which would maintain adequate lines of banking and mercantile credit will have to maintain an adequate set of books designed to supplement the financial records and to give information essential to proper evaluation of its management.

The executive responsible for the management of the business, having before him properly constructed daily, weekly, and monthly reports drawn from the financial and managerial records, will be in a position to so shape the affairs of his business that it will grow to conform to standard.

It has been a long time coming, but the day is surely approaching when the conventional financial statement will be looked upon as but one of the details of the industrial statement. Running true to form, management will put up a stiff fight against any movement designed to turn the spotlight upon the inner reaches of what it may be inclined to consider its private affairs. The honest man, however, fears not the truth.

In the writer's humble opinion the subject of this meeting is without doubt the most important step ever undertaken by the Taylor Society. Although I do not feel qualified to speak for the National Association of Credit Men, I am confident that they likewise can cite no achievement of greater importance, nor as potentially far reaching in effect upon industrial economics in general and the credit situation in particular.

H. S. Person.[16] It has been asked why this is called a balance sheet. Certainly it does not have close resemblance to a financial balance sheet. But if it were set up with three vertical columns to the right of the items, headed "Good," "Fair" and "Bad," for instance, one could compare the ratings of the various vital elements of management and form a judgment which would represent a net balance of values.

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[16] Managing Director, Taylor Society Incorporated, New York, N. Y.

Mr. Wall raised the question, I believe, whether such a management balance sheet adds anything to the financial statement. His own subsequent remarks concerning pre-construction work gave the clue to the answer! A new enterprise without a financial record must be appraised as a risk on some other basis than financial records. The best basis is its organization set-up and its equipment for good management all along the line, from determination of policy to detailed operations. A concern which has a long record of financial success may well be judged on that record alone so long as industrial conditions remain normal. But in times of depression it must be judged on some other basis. Then there are always doubtful accounts; firms which have in the past had a good record but which seem to be slipping. Here an appraisal of management will be of great service in making a credit rating.

Another question was whether the credit men could use these balance sheets. I know that it takes a great deal of skill to go through an enterprise and secure in a short visit answers to such a working sheet as has been presented here. As was suggested in the preliminary text the credit executive of the larger concerns could ask the industrial engineers of these concerns to help them make appraisals. Groups of small enterprises could combine and spread the cost of such a specialist. Or a regional group of the National Association of Credit Men could maintain such a specialist on its staff for the service of its membership and build up central office records of management capacities of those firms in the region that are doubtful risks.

I will go farther and say that I think it perfectly possible for any credit executive to learn enough about the "earmarks" of good management to be able to use such a balance sheet as a supplement to financial statements.

The contact of the Taylor Society with the National Association of Credit Men in working out this meeting has been very stimulating. I believe this first step will result eventually in something of mutual benefit to engineers, general executives and credit men. I want to thank the National Association of Credit Men for co-operating so heartily with us this afternoon.

I HAVE . . . discussed a subject in which I am greatly interested, namely the possible effective forms of international co-operation and in a purely speculative manner pointed out some ways of developing such co-operation which seems to be worth exploring. All my views on this subject are based on my conclusion that the highest degree of co-operation that we can give to an unstable world must start with continuous stability at home for all important social groups. So far as may be consistent with this primary object, we should in every feasible way contribute to the stability of the other great industrial nations of the world.

. . . . What we need is effective and rationally foresighted leadership culminating in philosophically sound planning. On the question whether we obtain such leadership from American business, the fate of capitalistic civilization may well depend. Moreover, we must remember that even plans made through such leadership will be dangerous if the leaders lack a philosophy of the problems of business as related to civilization or fail to develop the modes and habits of thought necessary to the rational foresight required in a changing world. (Wallace Brett Donham, *Business Adrift*, pp. 164-165. See "Comment" on page 45 of this BULLETIN.)

The New Challenge to Scientific Management

Can the Principles of Planning and Control Be Applied Over a Wider Area than the Individual Enterprise?[1]

FROM time to time there is discoverable in American thinking some particular element which, though not yet general, has unmistakable significance. Whenever one of these relates to industry and involves principles of organization and management, the Taylor Society considers it a privilege and an obligation to offer a forum for its consideration.[2] As a device for stimulation and direction of discussion, it is essential that the particular element of thought at issue be summed up in the form of brief and fairly definite propositions.

The propositions presented for discussion this evening center about the concept that the operations of industrial society are not yielding the greatest possible good to the greatest number of industrial citizens. This is because these operations are not now, although formerly they may have been, organized with that end in view; and more particularly because of an inconsistency between the basic principle of business enterprise—*individual self-interest and intuition*—and the basic principle of the production technology which that enterprise, without full appreciation of its influence, has come to use—*co-operative integration*. The result of this inconsistency is periodic dislocations of industrial processes, stoppage of livelihood activities and of income for a large proportion of the population, and consequent ultimate impairment of progress toward a balanced and harmonious social life.

In its general outlines the concept is not new. For centuries there have been those, who, dissatisfied with the economic conditions of their lives, have constructed utopias and formulated doctrines of a better organized society. On the whole, however, these utopias and doctrines have not been in accord with the possibilities presented by the technologies of their respective times, and have involved sudden and revolutionary change.

The conspicuous new element in the concept today is recognition of present characteristics of industrial technology, which has undergone great and rapid change during the past half century. What is involved in the present approach to the problem is not revolutionary reconstruction but evolutionary consistency. It is argued that new principles of organization and control of individual enterprises, and of integrated groups of individual enterprises, have been developed and validated, and that if these were applied to the organization and control of industrial society conceived as an organic whole, many and perhaps most of the forces which now cause periodic dislocations and distress in industrial life would be eliminated.

With this brief explanation the following propositions are submitted for discussion:

Propositions

Proposition 1. Scientific management has given the individual industrial enterprise, whether single unit or multiple unit, a body of principles and a pertinent technique of management involving:

a. Research in its various forms—the basic approach to a solution of the multiple problems of management;

b. Standardization—the specification of purposes, policies, plans, projects, facilities and methods, as the relatively constant factors in terms of which plans may be made and their execution directed, measured and appraised;

c. Planning and control—the organization and direction of the application of facilities along predetermined lines for accomplishment of purposes, policies, plans and projects;

d. Co-operation—recognition and acceptance of the laws governing managerial situations discovered by research, formulated in standards and utilized in planning and control.

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[1] Propositions presented for discussion at a meeting of the Taylor Society, New York, December 5, 1930. Formulated by H. S. Person, Managing Director of the Taylor Society.

[2] The most recent symposium of this nature was held at the December, 1928, meeting of the Society. The discussion was printed under the title, "The Work-Week or Work-Life?" in the *Bulletin of the Taylor Society*, Vol. XIII, No. 6, December, 1928, p. 230.

The application of these principles has demonstrated the practicability of internal stabilization of the individual enterprise; i.e., control of variation in the relations and composite influence of the internal factors of the enterprise. The elimination of internal maladjustments, except when caused by the impact of forces outside the control of the management, may be regarded as practicable.

However, it should be noted, the internal stability of an enterprise established by scientific management is frequently nullified by the impact of forces of the industrial environment outside the control of the management.

Proposition 2. During the past century, and with rapid acceleration during the past quarter-century, production technology has developed along the lines of increasing mechanization, and of specialization and division of labor not only as between individuals in a particular enterprise but also as between enterprises and functional groups of enterprises. This has created an increasing interdependence among individuals, enterprises and groups. These organic inter-relationships are so intricate and delicate in their adjustments as to expose the industrial organism at any one of numerous points to maladjustment which is reflected all along the line of inter-relationships. These maladjustments occur periodically, and take the form of a serious stoppage of productive processes and of the distribution of social income, with serious consequences to numerous individuals who are dependent upon that income for maintenance of their standard of living, and in some instances for their subsistence; and with serious consequences also to enterprises which are dependent for maintenance of stability upon continuous transformation of material goods into free capital for reinvestment.

Proposition 3. There are two principal reasons for these maladjustments of organic relationships and their serious consequences. On the one hand, the adjustment of relationships is left to the "working of natural economic forces" in the negotiations of business—really the chance composite influence of a vast number of enterprises motivated by individual gain in competitive activities, limited in their perception of relationships and the organic consequences of their activities, and on the whole dependent upon intuition for their decisions as to purpose and method. On the other hand, the organization and direction of established social mechanisms upon which even individual enterprise has long been dependent, such as currency and credit, is along similar lines of individual initiative, control and intuition.

In other words, the basic individualistic processes of business enterprise no longer operate in harmony with the vast superstructure of inter-related technological processes of the actual production of social utilities. This absence of harmony is not merely negative, but is a positive force generating periodic dislocations more and more destructive in their influence in the whole social structure.

Proposition 4. This lack of harmony between the processes of business enterprise and the technological processes of production of utilities may be removed or at least measurably reduced by deliberate efforts of industrial society to bring them into harmony; efforts which presumably must proceed along the following lines:

a. Common recognition of the problem and analysis of its causes and consequences;

b. Voluntary establishment of some form of self-government in industry dependent for its effectiveness on the acceptance by individual enterprises, for the common good, of the necessity for greater limitation to individual freedom in business activities than is at present assumed to be desirable;

c. Application of the principles of scientific management developed and validated in the individual enterprise (as presented in the first of this series of propositions) to industry conceived as one vast enterprise in which all members of industrial society are workers and share-holders in common.

Inasmuch as the application of these principles has in individual enterprises increased the opportunity for adjustment, initiative, self-expression, accomplishment and stabilization of purpose and effort on the part of those co-operating in these enterprises, it is a reasonable assumption that the application of these same principles on a larger scale will promote more generally throughout industrial society opportunity for adjustment, initiative, self-expression, accomplishment and stabilization of purpose and effort on the part both of individuals and enterprises.

Discussion

W. J. Austin.[3] Whatever our views on Russia, their ideal does seem to challenge our industrial supremacy. We must admire them for conceiving the greatest engineering plan which has ever had a possibility of execution. A nation of over 150,000,000 people is being transformed from an agricultural to an industrial nation on the basis of a definitely preconceived plan which involves new methods not only of manufacturing but of living. This is the largest investment of capital and skill that has ever been undertaken in so short a time. Inasmuch as this is an industrialization plan and involves large management problems it seems to me a very proper plan to discuss here.

You are all more or less familiar with the Five Year Plan, with which our company has had some interesting contacts. These have given us an opportunity for analysis and comparisons which have led to some conclusions concerning the effect of this plan on our supremacy.

While Russia has no background of industrial experience similar to that of the United States it has large industrial enterprises. Its railroads, shipyards, locomotive works, steel mills, textile mills and other manufacturing operations make it a manufacturing nation in a small way, but its production of raw materials is the important thing.

They have the advantage, in starting a new scheme of things, of less industrial capacity than we have and the disadvantage of a limited supply of labor and managerial ability. They do not have the obsolete plants that are a handicap to us but can start with the most modern construction and equipment that is to be had. They are free to execute their ideas unhampered by an aggregation of plants which will not fit into their plan. They feel they have the opportunity to create the highest industrial standards in the world today and have sent their engineers all over the world to study and evolve their own plans from the experience of others.

In general their first principle is standardization of production at capacity. Their aim is to keep production up to demand and no more. Without competition their central planning body is able to do this and to eliminate competitive selling costs, the expense of duplicate plants, models, etc.

They have adopted the idea of continuous operation. Each worker has one rest day in five but the plant never closes because these rest days are staggered. Every worker must be a member of a union for his own and the industry's good. These unions are jointly responsible with management for efficient production. Compulsory insurance takes care of accident, sickness, unemployment and vacation requirements. The health of children is taken care of by the State, which likewise supervises that of all the workers. They are in a position to work out an ideal situation as regards the health and well-being of the workers. To take the place of money incentives for increased output very clever use has been made of various competitive methods which do not involve pay increases. Honorable mention and prizes are given periodically for efficient performance and groups are pitted against each other for the distinction of leading in their particular industry. While their ideals are opposed to the competitive system they do not hesitate to make use of non-monetary features of that system.

Another feature which might frighten some of us here is that they welcome and invite criticism of the management of their plants by the workers. Any such criticisms are posted where all may see them.

Russia has endeavored to free herself from custom and to use the most modern methods by which she hopes to challenge all the world. I am not here to say whether or not she will succeed, but I do say that it behooves all of us to watch this experiment. She has conceived a remarkable plan the results of which are already astonishing, whether or not the completed plan is achieved in the scheduled time.

In my opinion nothing is so fatal to industrial progress as the attitude of scorn toward those who have not had our experience. Sometimes that very experience gets us into a rut. Russia has endeavored to avoid the rut. While some of her ideas are very strange to us they are a challenge which we cannot afford to ignore.

Bruce Bliven.[4] Let me say at once that I propose this evening to be wild and incautious. I am not a scientific research person who has to weigh every statement. Mine is the job of the journalist who shuttles back and forth between the general public and those who know something, and I feel I am at least qualified to speak for the general public!

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[3] President, Austin Company, Cleveland.

[4] An Editor, *The New Republic*, New York, N. Y.

People are, I believe, divided by temperament into five classes. There are the reactionaries who would like to go back from the place we have reached; there are the conservatives who would like to stop where we are; there are the mild progressives who would like to go a little way ahead; there are others more progressive who would like to go a long way, and finally there are the visionaries or Utopians. I hope to talk as a representative of class four. I should like to project the present lines as far into the future as we can reasonably see, and no farther. I am not going to sketch any pretty picture of a Utopia, though what I say may not be closely co-ordinated with the present moment. Some of you will say I am in class five and some of you will think me back in class one.

A great deal is being said today in criticism of machine technology. But there is nothing wrong with the machine or with the ideas of mass production, speed, standardization, duplication and elimination of effort. The wrongness is in us, in the people who use the machines; if we could learn to use them correctly, our troubles would cease. I assume this to be axiomatic in this group, but it is not quite so axiomatic to some others.

Machine technology is suffering from sabotage, not on the part of workers but of business owners and politicians. Probably this is largely unconscious and inadvertent; they do not wish to hamper the machine but they have not learned how to work it. As I see it, therefore, it is our problem to teach the capitalists and politicians how to work machine technology without sabotage.

I am wondering if you have any idea of the impact of Russian ideas on the American mind today. As one who shuttles back and forth between public opinion and experts like yourselves I can report an extraordinary development of interest in the whole Russian experiment. Those who thought that communism as practiced in Russia would have no effect on the rest of the world have shown themselves to be mistaken. I think there is more interest in this country today than ever in the Russian experiment, and unless it is a complete failure the United States is challenged as it never has been challenged before in its fundamental concepts.

Those who read about or come into contact with our millions of unemployed and at the same time read about Russia's lack of unemployment are bound to have a different attitude toward our civilization from that of two years ago when we were prosperous and Russia was reported as starving and wretched. They are still hungry in Russia, but what food they have is being divided among all. It is much easier to starve when everyone is starving than to starve in the midst of plenty.

At this point I find myself about to say something on the subject of the evening. You will have gathered that I am in general sympathy with the idea of an intelligently planned scheme for the production and distribution of goods with a minimum of difficulty. I would go on to say that I do not believe that any scheme of this sort can be successful in one country alone. I do not see how you can plan the economy of any one of the great producing nations successfully unless you also plan on a world-wide scale. Here, then, are some of the things that seem to me fundamental in such a planned economy.

In the first place I think that population growth must be subjected to deliberate control. We practically have that in the Western World today. The Archbishop of Canterbury simply recorded a fact when he said that the birth rate of the Western World had been cut in half and would so remain. You probably all know that Western Europe and the United States have passed the peak of population growth, and are faced with a dwindling population. The fact that the birth rate is still somewhat larger than the death rate is really immaterial. I also think the migration of peoples must be put under world-wide social control. We cannot longer have the people of one part of the world moving to another part, either as an army or as individuals. Such movements upset too drastically the social economy of the area which is left and the one which is occupied, to be tolerated in a sensible, planned civilization.

In the second place, the production and distribution of goods must be accomplished under conditions which will serve the best interests of society as a whole. I do not pretend to say what those conditions are, but we cannot permit the production and distribution of wealth in a manner which hampers and mars the welfare, prosperity and happiness of society as a whole.

In the third place, I should say that particular goods must be produced in the place in the world which is economically most advantageous. In other words, shoes must not be produced in Boston just because someone wants to produce them there, if St. Louis is the proper place in which to produce them.

In the fourth place, I should say that the world's raw materials should be subjected to deliberate allocation among the countries of the world on a basis of their needs. That may sound very revolutionary to you. Yet I suppose you all remember that during the last few months of the World War, the Supreme War Council was starting to put that plan into effect. A planned economy must be based on such an allocation by an international body, especially in the case of such dwindling products as petroleum and the metals. We cannot allow one nation, which happens to own the spot where 95 per cent of some raw material is, to control that amount if it needs only 30 per cent. We cannot afford that kind of nonsense much longer.

In the fifth place, I should say that the markets of the world should be similarly allocated among the producing nations of the world. Percentages should be worked out, on the basis of population, wealth and resources, which would determine the extent to which every nation could go into the markets of the world. I cannot see any alternative to this proposal except a continual menace of war. That menace can never be done away with as long as nations are fighting desperately for control of markets which are bound to be too small for the continuously growing plant equipment of the competing nations.

As a corollary to that, let me say that a surplus of goods should never be produced in any country accidentally. If we are going to have a surplus in any country, then it should be a deliberately planned surplus, for the benefit of certain planned areas outside the borders. I can see no more value in a surplus economy than in one based on deficiency; both seem to me ridiculous from the point of view of sensible people.

That is my little plan for the future of the world. If I have taken more time than I ought in planning such a thing, it is because I speak too slowly. And if you ask me how I am going to bring this plan about. I shall reply that I am not going to bring it about. That is for the Taylor Society, which exists, I assume, to tackle the hard jobs.

Gustave Geiges.[5] I have been engaged in the full-fashioned hosiery business for a good many years. The last time I spoke before the Taylor Society it was as a representative of the American Federation of Full-Fashioned Hosiery Workers; now it is as personnel director of the Gotham Silk Hosiery Company. And I might add that we consider our industry as badly off as any in the present industrial crisis.

I think I can best discuss these propositions by relating to you some of my experiences in my two capacities in this industry. The tragedy of the present situation lies in the tremendous wastage of human life. Our situation is fully as bad as any in the South though we operate in the State of Pennsylvania. I do not mean by that that wages are so low, but mills are operating continuously with twelve-hour shifts. Time and again violations of the law were called to my attention when I represented the union and they were not entirely the employers' fault. I have always contended that the struggle is not so much between employer and employe as between the selfish and unselfish interests. In both groups I have met fine men and men who had no other desire than to advance their own selfish interests.

Until several years ago we had a very fine industry. Our people enjoyed as high a wage as any paid in industry. We tried to apply every scientific method and to develop the individual to the highest point of efficiency.

We have gotten away from that, particularly in the open shops where the union has absolutely no control. They think nothing of taking the experienced man and putting him over two to six machines operated by boys. This means that these boys have no opportunity to develop into expert knitters. They call that scientific and modern. They fail to realize that as early as 1903 we had a similar situation in our industry. At that time we called it exploiting the boy but eventually changed that condition.

When we speak of scientific management we must keep in mind the human element. What are we doing to develop the individual? Men and women in industry today are crying for work. The problem is not one of the distribution of wealth but of work and opportunity. People want to lead useful lives. There is nothing more disheartening and discouraging than to feel that you are of no use in the world. To my mind that is the problem.

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[5] Personnel Director, Gotham Silk Hosiery Co., Inc., Philadelphia, Pa.

I have tried very hard to extend planning and control beyond the individual enterprise. I saw the need of this thing years ago and made at least four attempts to call employers together when I represented the union. I begged them to form some sort of an organization to protect their interests. I pleaded with the employes to form some sort of an organization for standardizing the industry.

There is no need for suffering with the plenty that exists in the world, but the individual cannot solve the problem. It requires group regulation.

The employer who wants to do the right thing in our industry today must not only compete with the employer who takes every advantage but there is also the distribution problem. There are syndicates buying materials as cheaply as they can. Chain stores are selling at the lowest possible price with no thought of how the goods are made. This might be said of the general consumer and therefore of all of us. We want what we want at a price and are not concerned with the real value. Real value in the form of human well-being is not always reflected in price and that is a factor we must consider.

I am not a pessimist. I believe that a better day is coming but I believe also that it will require the effort of every human agency in our land, and in the world, to bring it about. I know from my own experience that the American Federation of Labor cannot solve this problem alone. I know also that it is very difficult to get employers to agree on some fair method of operation which will bring about better conditions. I know it is very difficult to try to convert the chain stores to consider how their goods are made. And it is just as difficult to get the consumer to pay for a real value which might lead to a better society.

We are, however, progressing. The fact that the present unemployment situation has aroused the public to the extent to which it has been aroused is evidence that we will no longer stand for the things we stood for in the past.

I think this discussion very appropriate at this time. I confess I do not know the solution but I hope the Taylor Society may play a part in bringing about a solution of this problem, which means so much to society.

A. F. Hinrichs.[a] This is by all odds the most interesting evening I have had since I left Russia. As soon as you mention the words industrial co-operation to anyone who has been in Russia, his mind immediately jumps to the State Planning Commission in the U. S. S. R.

My purpose this evening is to describe to you as briefly as possible something of the structure of this planning organization and also, more particularly, to point out the ways in which that structure and mechanism differ from the current American concept of planned industrial co-ordination.

The wastes due to lack of industrial co-ordination are great and have existed for many years in the past. Until recently these wastes have not been dangerous to the existing order of society, because no real alternative was offered. At present the Russian plan shows so much promise, that it behooves us to study what our course will be, when and if it becomes a success, measured even by American standards.

If Russia is successful, she will provide an alternative which is no longer Utopian but is a perfectly definite working example. If she succeeds, I give Western Europe about fifteen years and the United States about twenty-five years to find a method of eliminating the wastes due to lack of co-ordination. This prophecy is of interest only as it establishes the need of the most careful study of the technique of planning and some appraisal of what is involved in it. There will be a comparatively short time in which to make large-scale readjustments.

The planning work in Russia makes a strong appeal to the engineering mind. The planning program conceives a society in which man power, machine equipment and natural resources are co-ordinated with consumer demand, in such a fashion as to eliminate the wastes from which the United States and Western Europe periodically suffer.

It is sometimes overlooked that, before this planning work can be launched, there must be a decision as to social objectives. At the top, therefore, you have the political government of the U. S. S. R. determining the policies which planning should aim to achieve. The rate at which industrialization shall take place and at which the present standard of living shall be bettered is a matter of policy and not of engineering planning. At present the political government wants rapid industrialization.

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From that point the work of planning begins. It is vested in a State Planning Commission which is responsible for the co-ordinated five-year plan, a specific one-year plan and working orders for a quarter year. The actual conduct of Russian production is vested in a number of executive agencies. The Supreme Economic Council has under its supervision all industries producing for other industries, rather than for consumers; the Commissariat of Trade has under its supervision those industries producing for consumers, the work of distributing their products, and it has a monopoly of foreign trade. There are also Commissariats of Agriculture, Transportation, and so on. All of these agencies are also engaged in planning. The State Planning Commission is the co-ordinating agency only.

Planning in Russia is not superimposed from above but comes up from the bottom. Each individual establishment presents its plans for a given period covering expected production for that period, and the amount of material, labor, equipment, etc., required. In other words it makes a preliminary requisition for everything it is going to need to produce a given product in a given period of time. The period is one year. These individual plans pass up through the industry to the Supreme Economic Council where they are revised and coordinated. When they reach the State Planning Commission, they give a picture of two things: what industry can do and what it is going to need. Parallel to this you have the requisitions of the local co-operative stores based on budgetary studies of what the consumer is going to need. The total of these gives you the final element in the picture of industry's requirements.

Obviously the preliminary plans will not all fit together. It is the work of the State Planning Commission and other agencies to co-ordinate them. One plant is told that it must produce more, and another that it must use less material. They are also told how to do these things. It is discovered that some of the requisitions are for goods which cannot be produced in Russia. If they are to be imported, an exportable surplus must be provided to pay for these imports. After a reconciliation has been worked out, the revised plans are passed back to the individual organizations for their judgment on the practicability of the plans, and finally you have approval and execution.

If you could combine this balancing of consumer needs with the man power, machine equipment and natural resources of either a United States or a Russia and the detailed operating efficiency of the United States, you would have an economic mechanism surpassing anything ever dreamed of.

Of course a plan is not a reality. One of the amusing things in Russia is the way in which their thinking in terms of planning has tended to make them confuse plan and reality. A Russian said to me, "Our actual production in 1932 is so and so."

Translating planning into reality involves control. I find many sound American business men who rather admire the idea of balanced production. Their thinking is somewhat vague with reference to the sort of implementing of the plan that may be necessary. I do not pretend to know how far it is necessary to control producers in order to make a plan effective. In Russia, however, there is control over price, over wages and over foreign trade. The reason for price control may be visualized from the cotton industry, for example. It is one thing to try to execute plans based on a twenty-cent market price; it is quite another when the price is apt to be anywhere from nine to nineteen cents. The Russians find it necessary also to assume rigid control over foreign trade. They admit only such products as they want to see come into the country. When a series of nations goes in for this sort of thing, there will be great difficulties. At that time Mr. Bliven's statements about international planning will undoubtedly take on a great deal more reality for the layman than they possess today. In the meantime this control is quite effective and is vital to the execution of Russian plans.

The guiding principle in Russia is finally to attain maximum production, an ever-increasing real income and a rising standard of living for everyone. In this country the concept seems to be to limit production to that which can be absorbed at a profit in a market made up of existing incomes. It does not necessarily follow that these two principles are antithetical, but it seems to me that the evolution of the American ideal toward limitation of output is likely to lead to a static condition. A concept of planning as mere limitation of output would in a comparatively few years relegate the United States from its present enviable position as the richest nation in the world to one less favorable. What we need is stability in a dynamic situation, a moving equilibrium.

Paul U. Kellogg.[7] Dr. Person contrasts the co-operative integration which animates the internal ordering of our more progressive American industries with the reliance on individual self-interest and intuition which continues to characterize the arena of economic life in and through which those industries must function. He makes his plea for nation-wide planning. I should like to make that contrast closer in; the contrast of the co-operative integration of our industries and the individual self-interest and intuition which enthralls the surrounding community and neighborhood life from which they draw their working people. And I should like to do this against the experience of our American industrial districts in the midst of the financial depression. If the industrial neighborhoods of America were to do to the industrial establishments of America as they were done by this winter, we should have a Coxey's army of business men marching on Washington for relief.

I remember talking till midnight with an industrial leader in Cincinnati during last winter's business recession. The flattening out of the mass production industries of the Middlewest had crippled the operations of all those establishments which supply parts or machinery to the big plants. He was conscious of the distress among the families of discharged employes, but spoke also of another anguish, that of the executive like himself who saw his working force go to pieces. He had fitted men and skills and aptitudes into a scheme of production, had concerted health and morale and efficiency. Now it was slipping through his fingers and it would take months if not years to mobilize its like again and get back the old verve. His sensitiveness to what was happening was a decided advance over that of managements whose concern was merely for their physical plants. In truth we would not think very highly of a manager who after a shut-down should start up with his roofs caved in, his wiring unstrung, his lathes and punches rusted and his raw materials damaged. And yet the counterpart of this deterioration is what we seem to look forward to as the normal course when it comes to the household establishments of our industrial centers.

By gathering evidence when industry was in full swing, by singling out families dislodged through no fault of their own, by drawing them from all sorts of occupations and a wide range of industries, the Committee on Unemployment of the National Federation of Settlements has made an original and clarifying contribution to straight seeing on the subject. No such body of concrete cases, lifted from the industrial life of America the country over, has hitherto been available. Clinch Calkins has handled the settlement findings in her book with the ironic title "Some Folks Won't Work" (Harcourt, Brace) from which an open-minded employer will learn more of what unemployment does to families than he has got out of twenty-five years of hiring and firing.

The chairman of the committee, Miss Helen Hall of University House, Philadelphia, in bringing out 150 of the original stories as a source book: "Case Studies of Unemployment" (University of Pennsylvania Press), epitomizes the handicaps with which wage earners' families confront life when the man at length finds re-employment—not in all cases, she points out, but in such numbers among the 150 households whose experience was analyzed, that the trend is unmistakable. They confront it " . . . with savings used up, with debts to friends and stores, with homes lost or with furniture and clothing and other equipments for living sadly in arrears; with health impaired, spirits broken and earning power depleted."

If we were to take a leaf out of the modest proposal of Dean Swift and organize a Society for Wasting Labor Power and Gutting the Wage-Earning Market, it would promote exactly our present-day policies of irregular employment and would set its cap for an occasional cyclical depression. I should like to see the Taylor Society undertake a first-hand investigation and appraisal of what in bad times our employment policies exact of a representative industrial neighborhood; of how far even in good times we make the most of the potential labor power of such a neighborhood.

Those who, last winter, pinned their faith to the presumption that here in the United States we were dealing with a local and temporary situation, due to the collapse of stock market speculation in the fall of 1929, had to recast their reckonings. The industrial recession antedated that. Gradually the American public has become conscious that, ten years after the Peace, unemployment has become a world-wide problem. This splayed out view may prove as disserviceable as the narrow one, if it negatives resourceful action. In the United States we do not face the threat of revolution, nor peer into those vacuums which are the sequence of war in Europe. With our natural resources and scientific management, our detachment and initiative, ours is the responsibility to grapple with industrial problems with a freeness of hand that is denied our contemporaries. Out of our strength we should find new ways.

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[7] Editor, *The Survey* and *The Survey Graphic*, New York, N. Y.

And in taking on the commission it is well for us to distinguish between, as the war correspondents put it, strategy and tactics; between the grand strategy of overcoming the causes of business depression (and its resulting mass unemployment) and the tactics of closing in on unemployment as a recurring and measurable risk of modern production. Gold; trade cycles; war and waste; overproduction, under-consumption, uneven distribution; tariffs, reparations, credit—these and a dozen other factors are singled out by economists in their search for major causes. We are told that our current business depression lacked premonitory signals associated with its predecessors. However that may be, the economists, financiers and statesmen will be spending much time in arriving at a universal formula; while a baffled and angry world shouts, "Why?" and cures grow on every bush.

Now the problem of unemployment as it is interpreted by the neighborhood workers of the United States, as it is confronted by all of us in our communities, is something more immediate and manageable than all this—something simpler, and something that cannot wait. Nor is it something to be solved by breadlines, lodging houses or apple selling. Our relief workers ease life where it hurts, yet our emergency funds offer no enduring solution; nor does staggering jobs and passing unemployment around.

What we confront is the practical problem of broken work and broken earnings. It simmers down to the question of an everyday living to cover living every day, of how we can assure this minimum foothold for existence, or the opportunity to earn it, to every wage earner in the richest country the world has ever known, rich in foods and raw materials, rich in productive powers and organizing abilities, which make the denial of that minimum a ghastly joke. (1) "We must make work steadier and more secure. (2) We must make reemployment swifter when men and women are laid off. (3) We must insure against want the families of breadwinners who seek work and cannot find it."

Sincerely prosecuted, those three lines of action put forward by the settlements would not solve the problem of unemployment or outflank its great causes. But they would cut down its bulk in good times and in bad; and they would bring an orderly easement to wage earning households which now bear the brunt of this recurring and measurable risk over which they have no control.

We are making a belated start. We lack unemployment statistics—a steady stream of factual knowledge as a basis for planning. We let our wartime federal employment service shrivel up and even the pressure of last winter's need failed to pass Senator Wagner's bill to rehabilitate it. We have blocked out procedures for projecting public works so that they may be thrown in when industrial operations are slack, but measures to this end slept at Washington throughout nearly a decade of prosperity, and neither the federal government nor the states and cities were prepared to act on that principle in the current emergency. We have seen individual American employers, and even more convincingly, labor unions and employers in conjunction in the garment trades, demonstrate the practicability of unemployment insurance. One progressive national corporation—the General Electric Company—has instituted it in the midst of this winter's emergency. Governor Roosevelt has advocated it in New York, but as yet no American state has ventured to adopt such a system. Rather the shortcomings of the European systems are dilated upon. They seem outlandish to us in ways that would not be true of our reception of the imported models of a new type of gas engine or a foreign laboratory discovery.

Now while we have the worst unemployment statistics in the world, Professor Paul H. Douglas of the Swarthmore Institute of Unemployment has pointed out that we have exceptional employment statistics ranging back over the years, which would serve us in rating industries and concerns within each industry according to the regularity of their operations. It is conceivable that an American program of employment services linked with unemployment insurance might be geared to these rates, so that as in neither the British nor German systems, lowered premiums would go with a record of steady work the year round. As a consequence there would be economic pressure at the elbow of every management to diminish irregular employment within its province. As things stand now, to pare down a payroll is the easiest, if most shortsighted, line of business retrenchment. The pressure is the other way. Thus while we have been the last of the great industrial nations to apply the insurance principle at this point, we might easily, under its spur, be first in prevention; for it is in stabilization engineering that American initiative and ingenuity will find a congenial field. Inveterately, one after another we have scrapped the old ways of putting men to work. It is high time we laid hands on the hoary ways of putting them out of work.

Moreover, our experience with mutual insurance projects, with joint control of funds, with employment reserves, with the dismissal wage, with mothers' pensions and workmen's compensation, with work relief, with scientific management, industrial psychiatry and the modern techniques of our personnel departments, would bring fresh elements into such a program. By orderly schemes for protecting broken earnings and broken homes, we would get rid of much broken work.

The case stories of the settlements lay bare as never before the back-breaking effects of change and progress in an industrial civilization borne by those least able to sustain their weight. They uncover also some of our great anomalies:

Animated by co-operative integration we squeeze each ounce of worth out of a carcass or a tree; we draw each stir of power from a ton of coal. But relying upon individual self-interest and intuition we fail to devise plans by which such desirable efficiencies and skills, such tangible bundles of productive energy as unemployed men and women have to offer, can be marketed without losses such as no business could stand without going bankrupt.

Animated by co-operative integration we dovetail the wage earner into a vast mechanism of production, beginning with his foreman and the bench at which he works, and ranging through huge contrivances of machines, power plants, shipping offices, banking and commercial ramifications. But as an unemployed man, we leave him at the mercy of individual self-interest and intuition.

We count it corporate forethought when a great industry lays by reserves in good times in order to stabilize the dividends it wishes to pay its stockholders in bad times; but only a handful of establishments have tried out employment reserves to stabilize the incomes of their employes.

Animated by co-operative integration we insure every risk from a plate glass window to the education of our grandchildren, but we balk at the idea when it comes to any share of the unwritten payroll of the unemployed.

We have installment buying, part-time payments, all manner of schemes by which as consumers, wage earning households may mortgage their incomes for months ahead; but relying on individual self-interest and intuition we have nothing commensurate to give any security as to that income to such households.

"We recognize," as Miss Hall points out, "that the regularization of industry cannot be carried out by the man whom it most directly affects. We put that up to management. But we assume that by some miracle he and his family can underwrite the irregularities of industry."

In the last twenty-five years we have grappled with the hazard of work accidents. Through our safety engineering we have cut down their numbers and today the whole State of Pennsylvania, for example, does not have such a toll of death at work as Pittsburgh had at the beginning of that period. In state after state we have adopted workmen's compensation laws by which human wear and tear are made a charge on industry, and through insurance we have spread their cost out on to the consumers so that with every yard of cloth or ton of coal or mile of railroad travel we buy, we pay a bit in order that the burden of this risk shall not come down solely on the homes of the killed and injured workers. We make such deaths and injuries more costly to those who can prevent them—and do.

In that same quarter century, with respect to the hazard of industrial unemployment, England, France, Germany, Russia and a score of other nations have devised schemes of protection; we for the most part have left things at loose ends.

Entering into this procrastination, so at odds with our national temper, has been a psychological drag that also had its roots in our history as a people. We still hold to the imagery of pioneer days when we look through our smoke. We count on each man to shoulder his own misfortunes. We forget our rebel tradition toward misfortunes which are handed down to us. We preach a robust individualism that does not reckon with the fact that sturdy legs are tassels if they have no ground to stand on. It takes a wrench of our imaginations to regard industrial unemployment as something that concerns not alone the self-dependence of the individual wage earner, but the self-dependence and self-respect of American industry as a whole in carrying its own risks.

Now is the time, when depression drives the need home, to push for enduring solutions.

Allan C. Reiley.[8] The idea that the principles of organization which have been attaining recognition during the past few decades should be applied to the integration of industry in general seems to me a tremendous one. Twelve years ago such a possibility would probably not have occurred to the people who planned this program. I cannot help but think that such a possibility was suggested by the greatest economic experiment in human history. I expected to hear the Russian experiment figure prominently here tonight, and I have not been disappointed.

The propositions of the evening as I understand them, however, are offered directly and immediately to the United States. The communism of industry in Russia has been superimposed by an autocratic government, and as I understand Mr. Bliven, he prophesies that a similar system will be imposed on all the industries of the world by some international supergovernment. This may happen, but as I understand it, we are not here to discuss the ultimate future but the immediate American present. It does not seem to me that any immediate industrial problem in the United States can be solved by government or supergovernment. If we are to have what these propositions indicate, a complete organization of all industry, it must come through the industries themselves, that is, through an integrated correlation of all the industries of the United States. Not all the organizations but simply their mutual interests should be integrated through organization.

But where in competitive industry are we to find the basis for this integrated correlation? I think Mr. Bliven gave the cue when he described the legitimate objective of industry as service to human society. Industry has never even tried to render such service to the whole population of the world. If you go back to the trade and merchant guilds and the chartered companies of the Middle Ages and later, you will find they had no such purpose. They rendered specialized and selective services and sought monopolistic privileges within certain areas. The service of humanity as a whole was entirely beyond their horizon. That same tendency survives today in tariffs, favored nation clauses and every form of preferential and restrictive legislation in the commercial sphere. The reason is that industry has never had as its object universal service.

How can such a concept be brought about? The great problem of industry is no longer production but distribution. We have wonderful production machinery in this country, as they have in other countries. There is also much potential capacity and idle capacity, while people are without the necessities of life that this machinery should supply. This is not due to periods of depression, either. During the recent years of greatest prosperity in this country, millions were none too well fed, or clothed or housed. If this is true of our country, how much more true it must be of the more backward nations of the world.

The distribution problem is unsolved. If we are to have an industry serving humanity we must have an integrated distribution. Distribution is more than transportation and communication, more than merchandising or marketing, even in the broadest sense in which those terms are used. To be effective it must cover the actual organization of markets, which includes the organization of participation in those markets. The most perfect production and distribution systems cannot render any human service to the great masses of people who are prevented by poverty from purchasing. Industry can and must confer this purchasing capacity.

The organization of markets through participating activities is an expression that may require further definition. Such activities refer to the employment of the people whose services are required in the execution of productive and distributive plans, the further services to these ends that are required from without the organization, and the increased purchasing power that is conferred by all of these forms of participation. The term "organization of markets" may be unfamiliar to many, but there is nothing unfamiliar in the phenomena that this term describes. They are the commonplaces of every-day industrial experience. Every industrial institution, whether consciously or not, is engaged continually in the organization of markets, resulting in extended purchasing power.

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[8] President's Staff, General Motors Export Company, New York, N. Y.

What is needed, therefore, in order to find the basis for a true industrial integration, is a general recognition of this fact. The extension of general purchasing power constitutes a mutual service to which each and every industrial institution must contribute in the service of all. Here if anywhere, in an interest both universal and mutual, is the basis for organized integration of all industrial interests.

Mary van Kleeck.[9] May I bring the discussion back to the challenge to scientific management as Dr. Person has outlined it, and suggest its applicability to our present situation in this country?

Evidently it is generally accepted in this group that our trouble today is not the same as it was in 1921, when it was said that the cause of depression was primarily the over-expansion of inventories and that hereafter more careful control of stock on hand would prevent undue fluctuations in the business cycle. We learned that lesson so well that, relying upon hand-to-mouth buying, we thought we were prosperous even up to the fatal minute in October, 1929. But apparently the fates that control education in economics had other lessons in store for the United States. We began to learn something about the uses of money in the stock exchange; some feeling for international trade stirred within us, and finally the whole question of the relation of productive capacity to buying power became important.

At that point some of us who are in the social-work group began to feel at home. At times social workers who are dealing with problems of poverty in this country have wished that business management would learn how to run industry so as not to place such a heavy burden of poverty upon wage-earners' families, and then rely for relief upon the charitable activities of the community. Now, happily, business managers are beginning to learn from social workers what is implied in the term "standard of living," because the balance of industry is being tested by this standard. The term simply means the size of the income as tested in its power to purchase the goods and services which the individual or the family needs and ought to have in proportion to the economic potentialities and stage of development of the community. In so far as the incomes of large groups of families are inadequate to purchase the products which industry has learned to make, the power to balance resources, production and consumption has been found wanting.

If I may digress for a moment to speak of foreign countries, I should like to urge that in our attitude toward Russia we do not overlook the fact that its stage of industrial development is far behind ours. Russia has chosen as its immediate objective rapid industrialization, and until that is achieved the ultimate objective of raising living standards for her people is delayed. Russia will conceivably reach a stage soon in the task of industrialization when she will be focusing attention upon distribution. Present conditions in the United States are not comparable to those in the Soviet Union. We are highly industrialized. Our immediate need, and responsibility, is to distribute purchasing power.

The problem in the United States is distinct and unique because of our economic position in the world. We have to plan our economic life with a view not to our own boundaries alone, but the boundaries of the world. This is because of the realities of economic development. We cannot limit our thinking because dollars do not remain in one country. We are a creditor nation to which war debts are owed. All policies of government in international relations must in the last analysis be tested by their actual effects on industrial and business life in our own and in other countries. The new challenge to scientific management in the United States today, then, is to take account of an array and a complexity of facts such as business in this country has never faced before. The challenge lies in the necessity for studying all the facts until we become aware of their significance.

I may use the Regional Plan of New York as a small illustration of the difference between having facts available and being aware of them. Under that plan economists studied the space requirements of industries in this region for fifty years in advance. The printing industry was among those studied. A joint committee representing employers and labor in this industry went over the findings of the economists. They had mapped out on transparent paper the location of the industry, showing the directions in which it was moving and the opinions and actualities which were governing its choice of location. A map of the same area, giving land values, was also made. By placing the transparent map over this diagram of land values it was evident to the joint group that the industry was occupying the most expensive land in New York. It is inconceivable that the industry did not know it was located on expensive land, but apparently it had not been sufficiently aware of that fact. When it was put before the group graphically the reaction was: "If we had known this twenty years ago we could have saved the industry thousands of dollars." Awareness of simple facts, easy to acquire by means of economic research, and of the wide implications of these facts, is essential to business today.

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[9] Director, Department of Industrial Studies, Russell Sage Foundation, New York, N. Y.

Dr. Person has named research, standards, control and co-operation as the essential elements of scientific management. I think that the preceding speakers have left a large burden on my shoulders in the way they have dodged the word "control." Mr. Bliven began all of his schemes for the organization of the world with the verb "must." I should like to know what that categorical imperative means.

What source of control can the scientific management movement in the United States depend upon in working out its problems? We are told that certain obstructive laws in this country prevent the getting together of industries in a plan of action. Yet there are evidences that by various devices prices, wages, production and markets are, in a measure, controlled. Force can take all sorts of subtle forms other than military organization. The question is what kind of control do we in the United States propose to exercise? I believe the control which is given as one of the principles of scientific management is well described by a remark of Mr. Taylor's, "There is one master in the workshop and that is knowledge."

Business in the United States is challenged to see whether the functional groups of finance, production, distribution and labor can be controlled by facts instead of by a short-sighted contest of group interests. It is control by knowledge that we in the United States want, because something tells us that there is a basic law of human relations involved; that economic life cannot be permanently dominated by only one set of interests; that it is possible to gather facts upon which to develop an industry which really serves society and attains stability by serving needs revealed by knowledge.

It has been good this evening to hear an industrial leader talk of service to society as the objective of industry. If a woman had said it, she might have been thought sentimental and forgetful of the importance of profit. Yet business leaders are now saying that industry has developed to a point where only the most economical and most effective service can keep the wheels in motion. The aim of effective service must be worked out all along the line. Having concentrated upon production in these past decades, we are forced by the present depression to look at the wastes of distribution. We must see to it that the ultimate consumer is served, that he has the buying power to purchase so that there will be balance in economic life, not in a static sense, but in the sense of a progressive raising of the standards of living as industry raises its productive capacity.

We in this country have fascinating problems, and the people in this audience can tomorrow take steps toward solving them. We have the problems of the basic industries of power and coal. In the need for markets we have the problem of distributing income to the end that standards of living may be maintained. This is the social task which Mr. Kellogg has been emphasizing. The complete stoppage of income among large groups of wage-earners so ties up economic machinery that it is very difficult to start it again in a depression.

I turned this evening to Copley's "Life of Taylor." On the flyleaf are words which come with a new prophetic meaning. They are from Taylor's "On the Art of Cutting Metals" and read as follows: "We are now but on the threshold of the coming era of true co-operation. The time is fast going by for the great personal or individual achievement of any one man standing alone and without the help of those around him." The sensible course is to face this new opportunity for co-operation into which we must put a true economic meaning. Force has no place in the new era. The moving power of scientific management is co-operation in procedures and practices, conforming to standards developed by research. The question which challenges scientific management in the United States is whether American industry can accept knowledge, and not force, as its control.

Quality

A Management Which Reconciles High Standards of Quality With Mass-Production Requirements

By CARL W. GATES

Superintendent of Inspection, Kearny Works, Western Electric Company, Kearny, N. J.

ON MANY occasions, we have heard this old adage, "We certainly got our money's worth out of that purchase." Usually the intent of that thought could be interpreted in this fashion. The quality of the article was of such a high standard that the service received per dollar expended was beyond the expectations of the purchaser. The purchaser reacts most favorably to such an experience, and it causes him to consider very seriously the buying of other material from this same source. He usually becomes what we call a "steady" customer in the event of similar results from subsequent purchases. In other words, he will probably look to this supplier to fill his requirements whenever possible and often without regard to the fact that a competing supplier quotes a lower price.

Now, in my interpretation of this oft-repeated statement, I have used the term "the quality of the article purchased." A definition of this phrase, which appeals to me as most fitting, is "those characteristics of an article that determine for the purchaser the reliability and durability of the article."

You will notice that in these remarks I have referred continually to the purchaser as the judge of quality. This, I think, everyone approves, and it therefore becomes necessary to build quality into a product to create the desire within a customer to return to the same supplier for his future requirements. You see that this thought can be applied to the inexpensive article as well as to the more costly.

How are we, as manufacturers, either large or small, to know that quality is being built into our product, and who is responsible for its presence at all times at the proper level?

Let us imagine, for a moment, that we are about to begin the manufacture of a new article. For sometime past we have been experimenting with models and know exactly what quality requirements must be met. We have already satisfied ourselves that if an article having this quality is produced at a reasonable cost there will be a demand for it.

We start the manufacture of this article on a small scale and carefully select a few operators for this work. They might be obtained either by transferring from some of our other work men who are familiar with the methods of manufacture that are to be employed or by using those men who have carried on some of the experimental work in connection with the development of this article.

Manufacture is now under way. We spend most of our time in the shop observing the detailed parts as they are being made, watching the assembly of the first few units, and experimenting with them to see how well they meet our expectations as to performance. We have discussions with the operators in regard to improvements in manufacture and ways and means of overcoming manufacturing difficulties. We seek their suggestions as to how some of these difficulties may be overcome. The operator who is making details is called in to observe a defect in the assembly operation caused by the dimensional variations in a detail he is making. Together the solution is worked out.

Soon each of the men working on the various steps in the manufacture of this article is as familiar with the results desired as we are ourselves. The men have a full appreciation of the weaknesses to be guarded against and demonstrate a keen interest in eliminating these weaknesses by careful, accurate workmanship.

What about an independent inspection of our product before it is put upon the market? The

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[1] Papers presented before a meeting of the Taylor Society, New York, December 3, 1930.

necessity for it has not been felt because we are confident that our operators have placed emphasis on the matter of workmanship and have assured themselves that this workmanship is meeting a quality standard which they fully appreciate. This confidence was created through our intimate contacts with these men and their work.

Now, because of increasing demands for our product, we find it necessary to expand our manufacturing facilities. We decide to place the manufacturing activities under the supervision of a shop foreman. He carries on the same practice of discussing manufacturing difficulties with the operators, points out their faults to them and impresses upon them the need for careful workmanship and the checking of their work after completion.

As our business expands further, the duties of our foreman become more and more varied, methods of manufacture, cost, maintenance of output, and personnel problems are occupying a large part of his time. Our foreman advises us that, because of these new duties, he is no longer able to spend as much time with his operators and to satisfy himself regarding standards of workmanship.

The question that now confronts us is how we can best safeguard the quality of our product. To safeguard the product means to see that each unit is as nearly as possible like every other unit and equal to or better than the units we have manufactured in the past.

A certain responsibility of the foreman has become too large for him to handle along with his other duties, and he must now delegate it to some other individual. This responsibility is to determine who in his organization does not have the proper conception of quality workmanship in order that he may apply corrective measures where the need is the greatest. It must also be recognized that a large operating organization is composed of men of varying experience, all of whom have the human trait of fallibility. With this in mind, a barrier must be set up to screen out the poor workmanship while the corrective measures are being applied by the operating foreman.

The man to whom this responsibility is assigned is known as an inspector. Bear in mind here that the main duty of this inspector is to keep the foreman advised as to the quality performance of each workman so far as the nature of the work permits. This, I believe, forms one of his most important functions. The inspector is, therefore, purely a service man to the foreman, or in turn to the operators, assisting them to reach their quality objective. The *inspector does not create* quality in the product.

Whether this inspector or, as the work expands further, the inspectors continue to report to the foreman or whether they are later grouped together in one body reporting through an executive to the management will depend principally upon the nature and variety of products manufactured. This is largely a matter of opinion with the management. As I see it, the way this is done is of lesser importance; the main objective is to be sure that at all times *quality is being built into the product* rather than a fruitless effort being made by the inspector to create it. The management is then assured that the standard of quality is always present in its product at a minimum cost.

Of course, there are many other managerial problems to be considered in setting up an effective inspection, such as the type of inspection, that is, whether it will be on the basis of detailed inspection, circulating inspection, statistical inspection, or spot checks by observers. Other matters of importance, such as inspection cost control, records of inspection performance, and control of waste through defective material must be given their share of attention.

However, in the consideration of these details the fundamental point is to see that a recognized quality of workmanship is being maintained by the man who is making the product. Therefore, the inspector should be so trained that he has this continually in mind and does not tend to become a rejector rather than an inspector. By this I mean that he should not be a man whose only interest in inspection is to screen out the defective material as it passes through his hands.

In discussing the matter of inspector training, I think it best to confine our remarks principally to the inspection supervision of the lower ranks. My reason is that, in organizations of any size, there are usually several inspectors under the supervision of one man. It is this man whom we expect to carry out the principles previously outlined.

The supervisor of the inspection organization, as well as any other, of a manufacturing industry requires very careful selection for certain characteristics. Our first prerequisite is that the man shall have shown some evidence of supervisory ability. It is not enough that he should be the best workman. His educational background and ability should be sufficient to enable him properly to administer the company's cost and production systems as applied to inspection. He must also have technical knowledge or experience so that he can properly cope with the technical points arising on his job. It is not always essential that the man have this experience prior to starting on certain inspection work, but he must at least have the background so that he can rapidly absorb it.

When we look over these requirements we find they are just about the same as those required for any kind of supervisory position and not necessarily for inspection work alone.

In addition to the above prerequisites, however, the inspector should be exceptionally outstanding in the matters of co-operation, tact and analyzing ability, so that he may be able to handle the most important phase of his job; namely, service to the men building the product. He must be able to appreciate that the way in which he can get his job done accurately, quickly and cheaply is to have the operators who are building the product do their work correctly, and the best way for him to obtain this end is by unlimited co-operation with them.

Of course, it is important that all supervisors have the spirit of co-operation, but I think the inspector is an outstanding example of a case where all phases of the work are likely to suffer if this qualification is not exemplified in his dealings with others.

In order to teach the inspection supervisor to operate on his job in this manner, we have found it very advantageous in our company to sell him these principles through the medium of a training course. In this course of instruction other supervisory subjects, such as cost control, production control and personnel problems are included.

In order to select the proper men for inspection supervisors, we have instituted what we call a pre-supervisory training course. Each inspection department head is asked to name from his organization two men with the necessary attributes for a good inspection supervisor. The selections of all the department heads are placed together in a class which meets weekly.

No promise is made the selected men that they will become supervisors because they have been chosen for this training work. They are told that we wish them to attend these classes for the purpose of becoming better acquainted with the fundamentals of our business. After the completion of the course the men continue, at least temporarily, in their old positions.

The subjects discussed in these classes are as follows:

1. *Co-operation as a Supervisory Responsibility.* Under this subject co-operation on the part of the inspection supervisor is brought out as a definite responsibility equal in importance to that of inspecting the product.

2. *How to Give Orders and Directions.* Here the men learn the different ways of giving orders and directions, and how to fit them to various individuals and occasions.

3. *Job Teaching.* At this time the men learn to recognize and emphasize the essential parts of a job, to concentrate on the essential, and to teach only one lesson at a time. They are also instructed in the rules of good teaching, and correct teaching practices in the classroom are demonstrated in the classroom.

4. *Introducing the New Man to the Job.* In this class the men receive instruction in the practice of making new employes feel at home and taking care of their initial needs. We also point out the necessity for close contact between the supervisor and his new men during the "breaking in" period, in order to establish the confidence of the new man in his work, his supervisor and the company.

5. *The Setting of Individual Production Standards.* The members of the class are instructed in the theory of, and receive practical training in establishing, output standards for inspectors. This course applies directly to a plan in effect in our plant for the purpose of measuring individual output. This plan also acts as an indirect wage incentive to the inspectors.

6. *Analyzing and Planning the Job.* This subject is intended to train the men in orderly thinking on their jobs. We endeavor to teach them how to isolate the important problems from a mass of details concerning difficulties in their work. We also cover the necessity for planning for future needs on the job.

7. *Rating of Quality.* The importance of a quan-

titative method of measuring quality is brought out in this subject for the purpose of making definite comparisons between different articles and different operators. The theory of the quality-rating plan as now set up in our plant is explained in detail in these classes.

In addition to the subjects mentioned, we also give the students descriptive matter on other subjects pertaining to supervision for outside reading.

After the classroom work on each subject is completed, a short examination is given. The questions asked are in the nature of practical job problems which require the application of the principles brought out in the classroom work. These cannot be answered directly from the text material furnished but require some initiative and practical application of these principles to solve the problem. In order to obtain as many data as possible on the qualifications of these candidates for supervisory positions, we also give them a mental alertness test. This, together with the results of the examinations on the training work and the instructor's estimate of the individual's supervisory qualifications as observed in the classroom, comprises a final overall rating.

As a result of our experience in carrying on this training work over a period of three years, we have found only 60 per cent of the candidates eligible for minor supervisory positions. It is interesting to note right here that had each department head been requested to select two men for immediate appointment as supervisors, without training, he would, of course, have made the same selection as he did for the pre-supervisory training course. Proceeding on his recommendation and appointing these men would then have resulted in 40 per cent of our new supervisors proving incompetent. This would have ended in a sad experience both for ourselves and the men.

Those men who satisfactorily complete the training course form a reservoir from which the first line of inspection supervisory positions are filled as they become available, either through expansion of the organization or promotion of the men filling these positions. Not only have these men gone a long way in proving themselves capable of filling these positions but now have a good working knowledge of what is to be expected from them and the way in which they should go about accomplishing the results.

The time expended on the men who fail to meet the qualifications for promotion to supervisory positions is not entirely lost in that we often find through this training that a man is exceptionally outstanding in some one of these subjects and can be used as a specialist on that phase of the work. This may often prove to be a promotion in a lesser degree because this special work will undoubtedly be considered of a higher order than the routine work he has been employed on and would therefore make him eligible for a higher rate of pay. Other training courses are provided for the men in the supervisory ranks to fit them better to administer their positions.

Of course, the satisfactory completion of the training course by no means completely forecasts the future of these men as supervisors. It does, however, tell us that they have the ability to learn, mental alertness, adaptability, judgment, and originality to cope with the problems of a minor supervisory position.

There is another valuable by-product of this training work. Potential supervisors and supervisors who receive this training are far more able to carry procedures and policies of the management down the line to the individual worker. The result of this is a better understanding of, and less resistance to, the company policies because there is a better appreciation of the reasons for them. A feeling is created within the lower level of supervision that they are a part of the management of the industry.

Now for a few examples showing how that part of the training in co-operation may be put to use. Let us suppose that the inspection supervisor finds a certain defective item occurring to an abnormal degree in the product which has, at first glance, all the appearances of poor workmanship. His first step is to instruct his inspectors to make special checks for this item and cull out the defective parts from the product. The inspector might simply reject these defects and let the operating foreman handle the situation as best he could. This is, in my opinion, absolutely the wrong procedure. A better plan would be for him first to take a few samples of the defective work and analyze them, in an endeavor to determine in his own mind just what is at the bottom of the trouble. After completing this analysis, he should visit the foreman of the department making the product and explain the situation to him as he sees it. If it is a matter of poor workmanship, he must convince the foreman of this and offer in a tactful manner his assistance in correcting it. He can do this in several ways: by making a daily report to the foreman on the particular item in question or by offering to place at a strategic point in the Operating Department an inspector who, by making special checks, tells the foreman the progress being made by his operators in overcoming the difficulty. On the other hand, the discussion between the foreman and the inspector may reveal that the inspector erred in his analysis and that the trouble was not due to poor workmanship but caused by a tool that had developed a new kind of trouble or by raw material of the wrong quality. The inspector helps to eliminate this difficulty by getting in touch with the tool or raw-material inspectors who are, as a matter of fact, members of his organization. He should also see that they take immediate steps to help the operating foreman straighten out his troubles. In those cases where the design of the tools, machinery or equipment appears to be at the base of the difficulty, the inspectors should take the initiative in presenting the shop's troubles to the engineers and following through their correction.

Again, through a complaint from the sales organization on a certain item of quality in the product, the inspector may feel it necessary to raise the standard of workmanship on one of the operations. The inspector, however, may be demanding a quality of workmanship which is beyond the possibility of attainment. By a discussion between the inspector and foreman of the operations involved a mutual agreement is reached as to just what degree of workmanship can be expected from these operations. When this has been arrived at through mutual agreement the foreman will be more conscious of his responsibility to maintain this standard. The inspector, at the same time, will be satisfied that he is receiving the best quality possible under the circumstances.

Knowing what can be expected from the operating people, the inspector may still not be satisfied that the quality level will be sufficiently high. But he is then in the best position to present the case to the technical organization for any changes in design of tools or machinery that may be necessary to raise the quality level to the desired standard.

How can the inspection supervisor present to the operating foreman a picture of the degree to which his operators are building quality into the product, and the overall results of the operating organization? In the past, the practice has been to give this picture to the operating foreman in terms of the percentage of defective product. This does not distinguish between the seriousness of the defects found and a minor item of appearance. The latter may carry as much weight as a major trouble of operation. For example, an operator may have produced 10 per cent of work defective in a minor respect. This might actually be less serious than the production by a second operator of 1 per cent of work defective in a major respect. To overcome the inequality of this method, we have developed a weighted quality-rating scheme.

The quality rating for each product is established by the following means: each kind of defect that might be present in an article is assigned one of four demerit values depending upon the seriousness of the defect. Class A defects, which would surely cause operating failures and which cannot be readily corrected, are assigned one hundred demerits. Class B defects, which will probably cause an operating failure in service but of a less serious nature than a Class A failure, are given a sixty demerit value. Class C major defects of finish and adjustment which are readily corrected are assigned twenty-five demerits. Class D minor defects of appearance or finish are assigned five demerits.

The number of each of these defects in a unit multiplied by the demerit value for that defect (namely, one hundred, sixty, twenty-five or five, as the case may be), when added represents the total number of demerits charged against the unit. The number of these units is used as a means of evaluating the quality effort required of the operator. The ratio then between the number of demerits and the number of units inspected or, in other words, the "demerits per unit" measures the performance of the operators.

The quality level which must be present in a product ready to ship is called the base period. This is the average number of demerits per unit which, in our experience, represents satisfactory quality. Comparison of the demerits per unit with this base period for any product then gives us a relative picture of the operator's performance.

Since we now have all the different kinds of defects in a similar product reduced to a common unit on some kinds of work, it is possible to evaluate an individual operator's quality performance in the form of a weekly or monthly rate. These rates are furnished to the operating foreman, who posts them in the order of their relative performance, using the base period as a bench mark. Each operator, as well as the foreman, knows how he compares with the others and with the standard expected. The foreman is then able to discuss each man's quality problems with him and to aid him to better his performance in the light of the information received.

We believe we have thus accomplished the two major objectives we have set up for the inspection organization. The first of these has been accomplished by furnishing the operating foreman with a gage by which he can measure the quality performance of his operators and apply corrective measures where the need is greatest. The detailed inspection from which the data are obtained for rating the operators erects a barrier that prevents any poor workmanship being passed on to the customer while the corrective measures are being applied.

What are the economic phases of handling inspection in this manner? We are introducing considerable additional work for the inspector, such as keeping a number of records that are not necessary if his only purpose is to screen out defective work.

At first these additional inspection duties will increase the cost until, through the efforts of the operating foreman, quality conditions begin to improve. At that time, the inspection effort required to prevent poor quality from passing through inspection is reduced. This in turn reduces the cost of inspection. This process may continue to a point where only sampling inspection is necessary to satisfy the inspector that quality is present. An outstanding example of this is the inspection of details and partial assemblies of goods that are in process.

In our inspection of these parts, we have been able to apply a statistical sampling plan where the gage indicates that in general, a satisfactory product is being made through the operating foreman's training work. This plan can also be applied where machine operations are of such a nature as to assure a fixed quality level under normal conditions. In brief, this plan operates in the following way.

We establish a "breaking point," or that point where the per cent of defects is such that the cost of making repairs or weeding out the defects in a succeeding operating department using these parts is less than the cost of a detailed inspection. This allowable percentage of defects is known as the "out-going quality limit," or the maximum average per cent of defects that can be economically passed on to another operating department in the organization.

A process average, or the average per cent of defects received by the inspection department under normal conditions, is determined. This is obtained from the history of a detailed inspection of the product. From our process average and our out-going quality limit, we then are able to select our sampling plan.

Reference tables which show the sample size and acceptable number of defects for various lot sizes are prepared for the use of the inspectors. By using these tables as a guide, the inspector either accepts or rejects the lot that has been sampled by him.

These tables are based on laws of probability and chance and have been so prepared that under the worst conditions we will pass a product with a percentage of defects greater than the acceptable out-going quality level only fifteen out of one hundred times. This risk has been arrived at with the consent of our operating departments, who use these parts, as satisfactory from a manufacturing standpoint. This acceptance risk, you understand, could have been set at any point desired by the manufacturer.

By this and other similar means we are able to take advantage of the improvement in quality made by the operating foreman as he applies the measuring stick received from the inspectors in the form of an individual quality rating. This results in a decreased inspection cost.

In our inspection work we have come to the conclusion that, with the proper training for cooperation between the inspector and the men producing the product, accompanied by an economical screening of the product, we are best applying the principle of "less inspection and more control." This, in our opinion, is a most desirable aim for inspection work.

An Outline of Organization for Quality Control

By A. G. Ashcroft
Industrial Engineer, Mohawk Carpet Mills, Inc., Amsterdam, N. Y.

WHILE there has been during the past few years a growing interest in management with relation to control of quality of product, the idea of quality control is not new in industry. It goes back to the pride of craftsmanship of the original artisan. When the trades first graduated from the home to the shop, inspection of product in some form was always present. The importance of inspection, however, gradually grew, until in Taylor's time it assumed enough importance as a manufacturing function to separate it from the manufacturing organization and make it a separate department. The importance of the control of quality has more recently grown to such a point that it has assumed importance as a major part of manufacturing, with inspection as one of its functions, so that the three elements—quantity, quality and cost—are assuming equal importance in industrial management.

That there has been a definite trend in this direction there can be little doubt. This has been pointed out by Mr. Henry S. Dennison, former president of the Society, in a paper on developments in management, in which he states that: "The progress of engineering toward objectified control of quality is one of the significant trends of our technical progress."

It is difficult, of course, for us to see in the bricks we are using, the finished building. Quality is an inclusive work. In industry it is used to mean the manufacture or fabrication of the product up to prescribed and recorded manufacturing standards of uniformity as to appearance or performance. For instance, in rugs there is a definite quality or standard for the manufacture of a $20.00 axminster rug, and a definite standard of quality for the manufacture of a $30.00 axminster rug, although the materials or fabrication of these two rugs are entirely different, consistent with the difference in price. The quality comparison is not, therefore, between the fineness of these two rugs in comparison with each other, but between the prescribed uniform standards that have been set up for each of these two rugs and the actual product in the case of each.

What are the elements in managing for quality and how can these be controlled? The elements are the same principles of manufacture with which we are all familiar: (1) the setting of standards of uniformity and quality of materials, parts and product; (2) accomplishment of these standards; (3) continuous development of new and improved standards in anticipation and recognition of increased technical skill and machinery, consumer demand and competition, and the economies of manufacture.

I. General Administrative Duties.

1. Development of continuous co-operation of the whole body of employes toward the accomplishment of the standards and the production of a first-class product.

2. Reduction of losses caused by errors in manufacture through investigation and correction of underlying causes.

3. Development of favorable group thought through financial incentives, quality meetings, and publications such as *Quality News*.

II. Inspection Division Duties.

1. Constant inspection of goods in process at all points where failure to maintain standards would affect production or the final quality of product.

2. Constant inspection of final product on completion to insure shipment of only first-class goods.

3. Interpretation for the production groups of the standards and specifications of raw materials and parts.

4. Interpretation for the production groups of the standards of final product as evidenced from customer demand through claims, comparisons with competitors' products, and previous standards of performance.

5. Aid in the operation of new standards and in the extra control necessary when changes in specifications are made and new products placed in production.

III. Product-Development Division Duties.

1. Setting standards and writing specifications with the co-operation of the engineering group for:

a. Raw materials,

b. Materials in process,

c. Final product.

2. Simplification of materials and construction of product.

3. Development of new products and lines.

4. Investigation of processes and the suggestion of changes in the engineering department.

5. Comparison with competitors' lines.

IV. Laboratories Division Duties.

1. Research:

a. New materials,

b. New processes in co-operation with engineering department,

c. New products.

2. Testing:

a. Raw materials,

b. Parts in process where technical test is necessary,

c. Finished product where technical test is necessary.

3. Co-ordination of activities with inspection and product development divisions of quality department for greater effectiveness of quality control.

The above set-up has a tendency to produce the following results, each of which has its bearing on quality:

1. Cleanliness and orderliness.
2. Inspection and maintenance of equipment.
3. Improvement and development of machinery and processes.
4. Testing of materials; research; material handling in process.
5. Production control—small orders, rush work, change of work, etc., all affecting quality.
6. Improved supervision, awakening functional responsibility.
7. Financial incentives. Pay systems must work toward quality as well as quantity standards.
8. Consistency of management policy which ties in sales and advertising with manufacturing standards for quality of product.

This represents, then, an outline in a general way of the regrouping of manufacturing units that will permit managing for quality and objectified quality control. To a department organized as outlined, some of the intangible problems of manufacturing can be referred for continuous and controlled study and action. The manufacturer of today, because of the constant change and demands in style and competition, needs to have continuous development and improvement of his product and of its quality. His producing organization, therefore, must be flexible enough to aid in this development without undue disturbance of the manufacturing units. A quality program outlined in this way, with wise executive leadership, will accomplish much in this direction.

Spring Meeting

APRIL 30—MAY 1, 1931

Hotel Benjamin Franklin, Philadelphia

Thursday, April 30

2:00 P.M. Planning Sales

Chairman: Henry P. Kendall, President of the Taylor Society and President of the Kendall Company

Speaker: Stuart DuBois Cowan, President, Cowan & Dengler Incorporated, New York

Discussers: Stanley I. Clark, Sales Manager, Lehn & Fink, Inc., New York; Archibald M. Crossley, President, Crossley, Inc., New York; W. E. Freeland, Freeland, Bates & Lawrence, Inc., Boston; E. H. Toussaint, Marketing Consultant, New York; Percival White, Marketing Counselor, New York.

5:00 P.M. Tea at Boxly

Hostess: Mrs. Frederick Winslow Taylor

8:00 P.M. Planning for an Entire Industry

Chairman: Philip H. Gadsden, President, Philadelphia Chamber of Commerce, and Vice-President United Gas Improvement Co.

Speakers: R. J. McFall, Chief Statistician for Distribution, Bureau of the Census, Department of Commerce, Washington; Huston Thompson, Bright, Thompson, Hinrichs & Warren, Washington; Walker D. Hines, Director, Cotton Textile Institute, New York, and Thomas L. Chadbourne, Chadbourne, Stanchfield & Levy (Sugar), New York.

Friday, May 1

9:30 A.M. Planning Production

Chairman: E. A. Joline, Vice-President, The S. S. White Dental Manufacturing Co.

Speaker: Ralph E. Flanders, Manager, Jones & Lamson Machine Co., Springfield, Vt.

Cases: Production Planning in a Medium-Sized Organization, by Milton C. Herrmann, President, The Herrmann Handkerchief Co., New York.
Production Planning in a Very Small Organization, by M. S. Dowd, President, and Ralph C. C. Nourse, Plant Manager, The M. S. Dowd Carton Company, Hartford, Conn.

Simultaneous Sessions

2:00 P.M. A Concrete Case of Production Routing as Exemplified at the Proctor & Schwartz Plant

Leader: George B. Whitehead, Assistant Works Manager, Proctor & Schwartz, Inc.

2:00 P.M. Planning Labor Relations: Further Consideration of the Report of the Taylor Society Committee on an Industrial Employment Code

Chairman: Henry Tatnall Brown, President, Brown & Bailey Company

Discussers: H. V. R. Scheel, Vice-President, Botany Consolidated Mills, Inc., New York; J. O. Hopwood, Superintendent of Employment, Philadelphia Electric Company, Philadelphia, and R. W. Johnson, Head, Employment and Service Department, Leeds & Northrup Company, Philadelphia.

2:00 P.M. The Relation of Cost Accounting to Budget Making

Chairman: E. P. Moxey, Jr., Head, Accounting Department, Wharton School of Finance and Commerce, and Member of Firm, E. P. Moxey & Co., Certified Public Accountants.

Speaker: Floyd F. Hovey, Industrial Economy Department, Eastman Kodak Company, Rochester, N. Y.

Discussers: John Balch, C.P.A., Balch, Funk & Company, Philadelphia, and Arthur W. Marshall, Assistant Production Manager, General Asphalt Company, Philadelphia.

2:00 P.M. Planning Work in the Office: Illustrated by Inspection of Procedures at the Offices of the Curtis Publishing Company

Leader: Walter D. Fuller, Secretary, The Curtis Publishing Company

6:30 P.M. Dinner Meeting: Is National Planning Necessary for American Industry?
International Planning

Chairman: E. W. Clark, 3rd, Member in Firm, E. W. Clark & Co.

Speakers: Wallace B. Donham, Dean, Graduate School of Business Administration, Harvard University, Boston, and Guests of Honor—James A. Bowie, Director, Department of Industrial Administration, College of Technology, Manchester, England, and Principal Elect, new Scottish School of Economics, Dundee, Scotland; C. H. van der Leeuw, President, International Industrial Relations Association, The Hague, and Partner, De Erven de Wed. J. van Nelle, Rotterdam, Holland, and L. Urwick, Director, International Management Institute, Geneva, Switzerland.

Major Urwick

MAJOR L. URWICK, Director of the International Management Institute in Geneva, and one of our distinguished members, arrived in this country on April 12 to spend about six weeks with us. He will lead the Distribution Section of the International Chamber of Commerce meeting in Washington, during the week of May 4–9, and is to be a guest of honor and speaker at our own dinner meeting in Philadelphia on May 1.

Summer Conferences

International Management Institute

From July 1 through 4 at Geneva this group will be devoting itself to consideration of the two subjects, "Management Research Groups" and "Rationalization: Pros and Cons."

International Industrial Relations Association

The subject of this conference will be "Social Economic Planning." The meetings will be held in Amsterdam, Holland, from August 24 to 28 inclusive. Dr. Person has prepared a key paper for this conference, "Scientific Management as a Philosophy and Technique of Progressive Stabilization."

Economic Conference for Engineers

The Stevens Institute of Technology and Columbia University Engineering Alumni are planning an Economic Conference for Engineers to be held from August 30 through Labor Day, September 7, at the Engineering Camp of Stevens

Institute of Technology in Northern New Jersey. Graduates of other colleges and junior members of the national engineering societies are invited to attend. Lectures, conferences and round tables will deal with such subjects as the fundamentals of finance in engineering and business cycles.

British Association for the Advancement of Science

The Centenary Meeting of this association will be held in London from September 23 to 30 under the Presidency of General Smuts. This meeting is expected to provide the scientific workers of Britain and other lands with a unique opportunity to confer. Dr. Person has been asked to present a paper on "The Aims, Methods and Progress of Research Into Management Problems."

News of the Sections

University of California

At a meeting on April 6 at the University Faculty Club Miss Ellen Hawley reported in an informal manner on her recent year's work with Mrs. Gilbreth. Miss Hawley was elected president of the group at the same time. Joachim Pope will be Vice-President, George Toll, Treasurer, and Marguerite Thomason, Secretary.

Colgate University

The Annual Essay Contest of the Colgate Student Branch of the Taylor Society was announced recently in the school paper. The subject this year was "The Practicality of Co-operative Organization for Supplying Merchandise to Students and Student Organizations at Colgate, with Special Reference to Possible Savings and Methods of Administration." A first prize of $15.00 and one or more of $5.00 were to be awarded.

Eastern Massachusetts

On April 22 the combined local chapters of the Taylor Society, the Society of Industrial Engineers and the Associated Industries of Massachusetts met at the University Club in Boston to hear a group of discussions on "Materials Handling." Mr. J. A. Cronin, Editor *Material Handling and Distribution,* spoke on "Skid Shipments," C. B. Crockett, Secretary, Industrial Truck Association, on "Material Handling and Industrial Electric Trucks," and a motion picture entitled "Modern Handling Methods" was shown.

At the meeting on March 25 C. B. Auel, Manager Employes' Service and Works Standards, Westinghouse Electric and Manufacturing Company, Pittsburgh, addressed the group on "Waste Elimination."

Central New York

On April 24 the meeting in Syracuse took the form of a round table discussion. E. H. Papworth, of the Brown-Lipe-Chapin Division of the General Motors Corporation, was in charge of the meeting and told of his experiences in manufacturing in Canada. Dr. Laird talked on some of the new discoveries on "Why Consumers Do Not Buy."

On March 27 Dr. Person addressed the group on "Management Problems of Small and Medium-Sized Plants."

New York Metropolitan

On April 9 Leverett S. Lyon, of the Robert Brookings Institute of Economics, Washington, addressed the group. He was particularly qualified to speak on the subject "Can There Be Science in Pricing?" because of his connection with the Brookings Institute study on that subject. Walter Rautenstrauch, Professor of Industrial Engineering, Columbia University, formally discussed the paper and an interesting general discussion followed from the floor.

The McGraw-Hill Publishing Company's "Plan for American Business" was presented by Mr. Carmody at the meeting on March 12. On February 18 Mr. J. Donald spoke on "The Problem of Executive Employment."

University of North Carolina

This student group has grown to a membership of approximately seventy-five during the year. Frequent and well attended meetings have covered a variety of subjects presented by a group of industrial and professional leaders. E. S. Draper, Landscape Architect of Charlotte and New York, spoke on "Southern Textile Village Planning." F. M. Craft, Chief Engineer of the Southern Bell Telephone and Telegraph Company on "The Budget Plan of the Bell System," C. L. Holmes, of the Department of Agriculture, on "Technique and Management in Farming," George D. Babcock, Industrial Engineer, on "Research for Factory Operations," P. H. H. Dunn, of the division of Simplified Practice, Washington, on "Simplification in Modern Management," E. H. Eige, Engineer, Hawthorne Works of the Western Electric Company, Chicago, on "Time Standards Procedure in the Western Electric Company," Morris L. Cooke, Consulting Engineer in Management, Philadelphia, on "Co-operative Research as a Factor in Industry." Mrs. Gilbreth and Mr. Sloan, President of the Cotton Textile Institute, were scheduled speakers at the half dozen remaining meetings of the year,

Erratum

Under "Books Received" in the Review Section of the February BULLETIN OF THE TAYLOR SOCIETY the price of Henry S. Dennison's *Organization Engineering* (McGraw-Hill Book Company, New York, 1931) was wrongly given as $3.50. *The correct price is* $2.00.

Reviews

Business Leadership. A series of lectures and analyses by twenty-two experts. Edited by Henry C. Metcalf, Isaac Pitman & Sons, New York, 1931, pages x, 357.

Probably no period in business history, as developed by the depression of 1930-31, has so emphasized the great need in business of strong and effective leadership. This book, therefore, appears at an opportune moment.

It does not attempt, however, to review, discuss, or offer any suggestion of the questions before business today. Rather, with a possible view to future values, it undertakes to discuss, from twenty-two differing points of view, the elements of leadership, the qualities that make leadership, in the lower as well as the higher ranges of leadership, and the biology and the philosophy of leadership.

This book should be read with profit by executive leaders because it is too often true that leadership in the individual is not a well-rounded development, but lacks, in some respect, intention, warmth, depth of permeation, and clearness of principal purpose, or penetration. For the greater the leader the more penetrating, inspiring, and clear of purpose must his leadership be.

It is even more important that it should be read by the younger men of opportunity and ambition, for its analyses will direct experiment, and explain experiences which will lead to better results.

Probably its greatest message, however, is that leadership in business, especially in a democracy, must not tend merely to getting better results in profits, but better results in the happiness of human beings.

It is becoming more and more clear, and the present world situation has brought out a mass of evidence and admission, that our advancing civilization, if it is to be successful, must develop those things which bring happiness to the mass of those who deserve it. Since the mass of the people, at least of our so-called civilized world, is involved in business, it becomes the duty, as well as the right and privilege of our business leaders, to work to this end, which, as many think, will be the most profitable direction as well.

No pretense is made in this book that the last word is said on business leadership, but the thoughtful and interested will undoubtedly get valuable information and inspiration from it. What more can a book give?

BENJAMIN A. FRANKLIN[1]

Co-operative Retail Buying Associations. By Wilford L. White, McGraw-Hill Book Company, New York, 1930, pages xii, 207.

The marked extension of chain stores in recent years, particularly in the grocery and drug fields, has created an unusual interest on the part of independent retailers and others interested in distribution, in the growth of co-operative retail buying associations. Therefore, the appearance of Professor White's book on this subject is most opportune.

Professor White has collected, primarily through the questionnaire method, data of unusual interest which cover the activities of co-operative retail buying associations. His conclusions on the whole are in harmony with those reached by other investigators of these buying associations. The one disappointment presented to the student of co-operative retail buying associations is the fact that the book contains little, if any, information covering the activities of buying organizations organized to buy co-operatively the lines of merchandise usually handled by department stores, such as women's apparel, men's wear and home furnishings.

Partly because of the growing competition presented the retail stores by the mail-order houses in the larger cities, a great impetus was given, beginning four years ago, to the growth of co-operative retail buying associations of independent retailers handling general lines of merchandise and of associations of department stores. The rapidity of style changes and the hand-to-mouth buying practices were also causes which made it necessary that retailers located at remote distances from their principal markets become members of co-operative retail buying groups because, through such membership, they could get daily buying service and current market information.

Many of the co-operative retail buying associations serving department stores and specialty stores will not conform to the definition Professor White has formulated of what a co-operative retail buying association is. The study will not satisfy the interest of many students of retailing in the functions and operations of these co-operative retail buying organizations because of the fact that all types of co-operative retail buying associations are not covered in it.

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[1] Vice-President, Strathmore Paper Company, West Springfield, Mass.

The book, however, can be recommended as a volume of general interest to anyone interested in the new form of retail buying and of especial interest to those who are desirous of having information on the organization and policies of co-operative retail buying associations in the drug and grocery fields.

PHILIP J. REILLY[2]

Planning and Control of Public Works. Report of the Committee on Recent Economic Changes of the President's Conference on Unemployment, Including the Report of Leo Wolman, National Bureau of Economic Research, Inc., New York, 1930, pages xxviii, 260.

This is an important and timely volume dealing with the possibility of using public works to absorb employment in times of business depression. The book consists of a brief summary report of the Committee on Recent Economic Changes, followed by an extensive study by Mr. Leo Wolman of the present status of the planning and control of public works.

The summary report is, on the whole, more optimistic than is Mr. Wolman. The committee concludes that "with a nation-wide improvement, properly safeguarded and flexible, in the financial and administrative organization of governmental agencies, and with information as to their current operations centrally located, a long step will have been taken toward the use of public construction as a steadying influence. The moderate elasticity in spending power which any reasonable budgeting system must provide will yield, by accumulating on a national scale the relatively small margins of each unit, a sum ordinarily sufficient to be an effective factor in the maintenance of economic balance."

Mr. Wolman, on the other hand, is less enthusiastic in his own claims based on his actual findings. He points out that any proposal to increase public works as bad times are coming on implies a knowledge of the time factors in each individual business cycle which, up to the present, we have never in practice had. He further points out that the withdrawal of any substantial amount of public works funds during good years might have the effect of "precipitating or hastening a decline of business that might otherwise not have been inevitable." He also points out that the needed public works are always so far behind the public demand that it might be impossible to persuade public authorities "to hold back one or more projects to meet a future eventuality of general unemployment."

He points out, however, that in the first few months of 1930, it was possible to increase the number of contracts awarded to public works and utilities by 30 per cent over 1929. But he also adds that "no satisfactory appraisal of the effects of various measures of acceleration can be made until some months after the close of 1930."

While as a whole this study is not discouraging about the possibilities in this direction, it does perform a valuable service in helping us to keep our estimate of the value of public works in bad times on a conservative basis. Although some moderate relief can be expected from this quarter, we must certainly look in other directions for a force that will really level off the high and low peaks of the business cycle.

ORDWAY TEAD[3]

Strategy in Handling People. By Ewing T. Webb and John J. B. Morgan, Boulton, Pierce & Company, Chicago, 1930, pages 260.

The authors of this book have been at great pains to collect innumerable anecdotes and incidents illustrating how people whose names are in the papers have shown strategy in handling people. Each chapter treats a special phase of the topic with copious examples and then concludes with a few italicized paragraphs of generalized conclusions. These abstract summaries are on the whole excellent—pointed, relevant and sound. As an aid to executives of all sorts this kind of treatment may have considerable value. It is hard to say. From my point of view, there is not enough substance of a psychological character, apart from the anecdotal data. One needs to know, I believe, not only what was done, but why it was done, and what human motives and desires were being appealed to. It seems in short too much of a scrap-book and not enough of a thought-provoking document. It needs the connecting tissue of analysis and interpretation. I am afraid the reader will be diverted and let it go at that. That my estimate may be wrong is evidenced by the fact that the jacket contains glowing endorsements of the practical utility of the book by numerous prominent business men. But then, these gentlemen have not been up against the specific job of training men to use good strategy in handling others. For this purpose, I aver, more than entertaining incidents are necessary.

ORDWAY TEAD[3]

Industrial Relations in the Building Industry. By William Haber, Harvard University Press, Cambridge, 1930, pages 593.

The purpose of this book is "to describe the major industrial problems in the construction industry, to relate them to the technical changes taking place and the business methods prevailing therein, and to present the elements out of which a more stable industrial relations policy can be evolved. It is the result of an extended investigation among the historical materials dealing with labor organizations and employers' associations and of gathering first-hand information through interviews with contractors, labor leaders, architects and engineers."

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[2] Director, Associated Merchandising Corporation and Retail Research Association, New York, N. Y.

[3] Editor of economic and business books, Harper & Brothers, and lecturer on personnel subjects, Columbia University, New York, N. Y.

The volume represents years of laborious work, the advice and criticism of numerous authorities, and the financial support of the Wertheim Research Fellowship. The result is the production of what is undoubtedly the most comprehensive factual study of the building industry available. The book begins with an excellent explanation of the economic, technical and social developments which have given the industry the aspects which it now presents. It then discusses successively such outstanding problems as the seasonal character of building, apprenticeship, jurisdictional disputes, working laws affecting operations and the closed-shop issue. This is followed by an historical review of the growth of organized groups in the building trades, whether of unions or of employers, with special studies of the situations existing in New York, Chicago and San Francisco.

The last part of the book summarizes such efforts at industrial co-operation as the Building Congress movement and the American Construction Council, and concludes with a summary of the important elements to be considered in the stabilization of the industry. The keynote of the volume is that those engaged in construction must develop an industry-wide organization, motivated by the desire for public service, and strongly led, in order that some means for controlling the selfish and unethical practices which have been so detrimental to the industry may be instituted. This implies the presence of an outside integrating force to which employers and unions would be subordinated and which would enforce higher standards of responsibility to the public.

HERMAN FELDMAN[4]

The Modern Worker. By Mildred J. Wiese and Ruth Reticker, The Macmillan Company, New York, 1930, pages xviii, 610.

As an American labor text for those who do not reach the latter two years of college this volume is most suitable. The authors start with the background of America's working groups, follow all phases of their development and present the 1930 status and problems in a most complete manner. Each chapter opens with an outline of purpose which is thereafter followed. The main questions are set forth as thought guides for the student while reading. Numerous very well thought out problems are appended to each chapter. The book takes on a definite reference value by reason of the large amount of statistical material which supports every angle of each subject. The range of tabulated data is from "hourly rate of accidents in a ten-hour plant" and family budget figures to "hourly and weekly money and real earnings" and adjustment records of a joint plant council.

Commendably frank and impersonal is the presentation of the strong and weak points in our present treatment of unemployment, economic sufficiency and joint relationships. The text closes with an able summarization of the policies of present-day unions and of present trends in labor legislation. Both are worth the attention of all interested in these fields even though they be not connected with college, evening public school, trade union, or corporation classroom work.

The Modern Worker is a valuable addition to the advanced textbooks in the Social Studies Series, to other volumes of which the same authors have contributed. Miss Reticker's old friends, and BULLETIN readers in general, will be especially interested in this book as an excellent example of her activities since she left the Taylor Society staff in 1926.

E. T. WILLSON[5]

Psychology and Industrial Efficiency. By Harold E. Burtt, D. Appleton & Company, New York, 1929, pages xviii, 395.

The subject matter of this book is of rapidly increasing importance, owing to the growing recognition on the part of industry that man-power is now the most inefficient element in our industrial scheme. The executive and the psychologist both realize—though arriving from somewhat different directions—that the answer must come from within the man himself. He must be encouraged to release the additional powers which we know are within him. This can be brought about through two avenues. The first is getting a better understanding of his mental, emotional and physical needs in his work relationship. The scientific investigation of these is primarily the function of the psychologist. The second is providing adequate facilities for work and growth, and encouraging the individual to full self-expression. This function falls on the employer, with the advice and counsel of the psychologist.

This book is a helpful discussion and outline of principles, reasons and general methods bearing on the efficiency and morale of the working force. Even the progressive executive may sometimes be uncertain as to the advisability of a proposed change in method for handling some problem of personnel efficiency, simply because he feels that he does not know enough of the whys and wherefores. Professor Burtt has been considerate enough to make each topical chapter reasonably complete and self contained, so that most of the appropriate material on a particular problem can be found in one place. Specific techniques are not cited as much as the reasons and bases on which sound techniques must be built. The executive can then adapt them to his own circumstances.

The following topics are taken up in detail: Education in Industry—principles and methods—underlying considerations in training apprentices, foremen and salesmen; Methods of Work—techniques for facilitating individual and group efficiency; Fatigue and Monotony—their physical and psychological bases and remedies; The Working Environment—illumination, ventilation and noise; Satisfaction and Morale—their development and their importance to productivity and personnel efficiency; Accidents—their causes and remedies in the individual and the group; Efficiency in Executive Work—a few suggestions for the executive in organizing his own mental operating habits; The Future of Industrial Psychology—a co-operative enter-

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